Composting Heads *pg28* | **Exploring Lasqueti Island** *pg36* | **Review: Watkins 27** *pg8*

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Good Old Boat

Issue 132: May/June 2020

FEATURES

DEPARTMENTS

On the Cover

Elena Pauling tends to *Mariolina*, her 1981 Tartan 37, while on a summer sail on Upper New York Bay, just above Staten Island. Elena and her husband, Jeffrey, are Hudson River liveaboards who work in New York City. Tom Skogstrom was sailing with the couple and captured the photo.

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GOOD OLD BOAT

CEO / CFO / PUBLISHER
Karla Sandness

EDITOR
Michael Robertson
michael_r@goodoldboat.com

SENIOR EDITOR
Wendy Mitman Clarke

BOAT REVIEW EDITOR
Dan Spurr

ELECTRONICS EDITOR
David Lynn

COPY EDITOR
Amy Jo Woodruff

CREATIVE DIRECTOR
Kelley Gudahl

ILLUSTRATORS
Rick Beddoe | Tom Payne | Fritz Seegers

CONTRIBUTING EDITORS
Drew Frye | Rob Mazza | Connie McBride | Cliff Moore
Fiona McGlynn | Gregg Nestor | Allen Penticoff
Robin Urquhart | Tom Wells | Ed Zacko

ADVERTISING SALES TEAM
Behan Gifford | Nica Waters
advertising@goodoldboat.com

DIRECTOR OF CIRCULATION & BOAT CLASSIFIEDS
Brenda Ellingsen
brenda@goodoldboat.com | 701-840-6137

FOUNDERS
Karen Larson and **Jerry Powlas**

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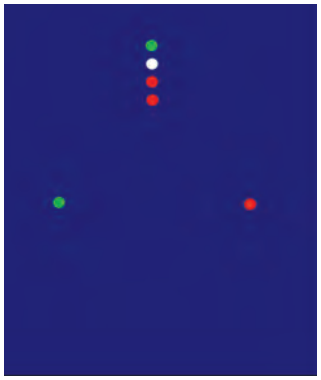
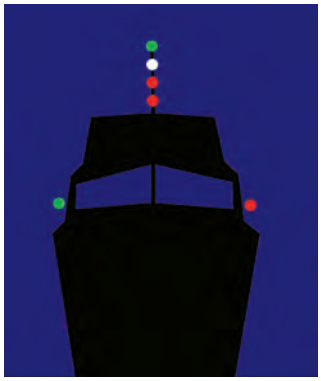
The sailing magazine for the rest of us.

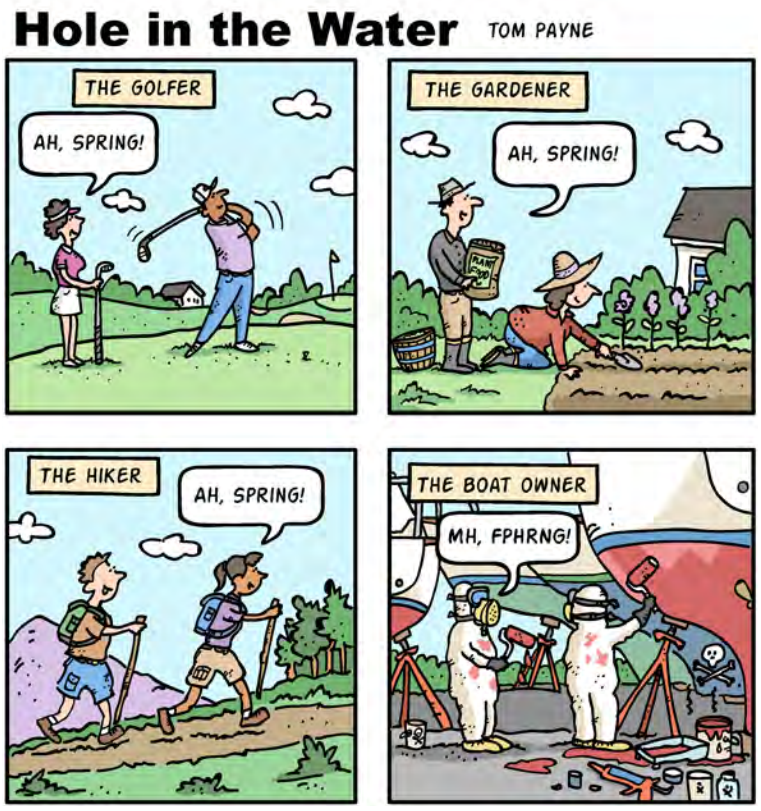
Tale of the Lights

There's a lot more to discerning vessel navigation lights than knowing about the red and green lights at the bow, the white light astern, and perhaps a steaming light high and forward on the mast—a lot more. How do we know? Because we took (and failed miserably) the Navigation Lights Test at usboating.com. To be fair, the test is difficult. It's a multiple-choice test, but we'd be surprised if anyone could pass it. Still, it was fun learning how much we don't know. See for yourself. And when you're finished, check out the Learning Experience story in this issue (see page 42). It has to do, in part, with discerning navigation lights—or the failure to do so.





Would you know that these lights identify a vessel engaged in fishing by trawling, gear caught in an obstruction, coming right at you?



The Case for Paperless

BY MICHAEL ROBERTSON

I've heard the refrain, over and over: "I would never leave the dock without paper charts aboard!" It rubs me the wrong way.

I think it's often used as a declaration of one's superior saltiness and seamanship. It's a judgment that the world is now filled with gadget buyers who are too reliant on their devices and who are disconnected from the basics, the fundamental navigation arts. "These poor saps are going to be in a sorry state when the Iranians hack our GPS constellation and they're lost somewhere under sail, no idea what to do next. While these technophiles sail in hopeless circles, not a self-sufficient bone in their bodies—reaching for their EPIRBs—I'll sail past on my rhumb line, plotting points on my paper chart..."

That's what I hear when the paper-chart declarations are made, and I don't buy it. I asked the question of readers in February's *The Dogwatch*. The overwhelming majority of responders echoed the feeling that paper charts are necessary, that sailing without them is foolish. I may be in the minority.

Respectfully, let's look at the oft-cited risks, starting with lightning. Consider the odds. First, the odds are low that your boat will be struck by lightning. If it does happen, for paper charts to be the lifesaver some claim, all of the following must happen as well: The lightning kills all your electrics, you're underway and cannot reach port without your electronic navigation systems, and the lightning doesn't cause other damage that is so significant that navigation becomes irrelevant. This is not a realistic concern.

Next, consider the oft-cited threat that hackers take down the GPS constellation. I'm betting this isn't likely either, but I'm not qualified to say, so let's go with it and assume the risk is real. So what? It's not a threat. GPS has largely given way to a global navigation satellite system (GNSS). In other words, most equipment aboard boats today use signals from American GPS satellites and Russian GLONASS satellites.

I talked to Benjamin, a technician at Garmin, about this. I sought confirmation that should the GPS system go down, Garmin's units would continue to work without interruption, pulling signals from the GLONASS system. He said they've never been able to test whether their devices would work if the GPS system was down and the GLONASS system was up, but that their hardware will deliver a position fix so long as any three satellites are received.

Consider too that several more systems are recently online, and that device manufacturers will likely begin to use these signals as well. These are Galileo (the European Union system), BeiDou (the Chinese system), and Quasi-Zenith (the Japanese system of four satellites that augments GPS in the Asia-Oceania region).

And what about solar flares or ground-based jamming of GNSS signals? Both do happen—the latter happens consistently in some parts of the world. Benjamin at Garmin said that in both cases, the signals from all types of GNSS systems are likely to be affected equally. In the case of solar flares, the satellites are not affected, only the ability of the signal to travel, thus making the position inaccurate (in terms of meters) or impossible to determine. Regardless, solar flares do not occur often, and they are temporary (typically lasting minutes to hours) and mostly affect only the higher latitudes (in terms of GPS reception). Ground-based jamming happens but is localized and in known areas, like piracy.

Which brings us to the primary fallibilities of electronic navigation tools: loss of power, damage, and failure because, well, complex electrical things break—especially aboard boats. I have a one-word answer to them all: redundancy. Vulnerable stuff aboard a boat isn't limited to electronics. Lines break, steering systems fail, and winch pawls and springs are susceptible. We anticipate these failures and we carry tools and parts to effect repairs. We carry spares or back-up systems to get us home. It's no different with our navigation tools, no matter what they're made of.

For some, redundancy means carrying paper charts in addition to electronic navigation devices. For me, redundancy means carrying several independent electronic means of navigation and having access to separate power supplies. To each his own, but there should be no shame in going paperless. I celebrate the self-sufficient ethos of sailing, and I wouldn't hesitate to leave the dock without paper charts aboard.

A Charged Debate, Rebellious Curmudgeons, and What's Truly Apparent

I was quite offended by Michael Robertson's trite dismissal of Peter Nesbett's comments about the magazine's new format.

Has it occurred to you that *Good Old Boat* also implies good old boaters? The generation that makes up the bulk of your readership does not take lightly to change. And the phrase "The Sailing Magazine for the Rest of Us," fit perfectly with our slightly rebellious and curmudgeonly natures! I can only urge you to repent, apologize for your hasty arrogance, and change it back before too many readers notice!

Although Peter's second point does not resonate as strongly with me, I do not like your response, especially your auto industry analogy. Boats and cars do not offer any useful comparisons. I think you must have been having a bad day because this response is, I am sure, offensive to not just a few of your loyal readers.

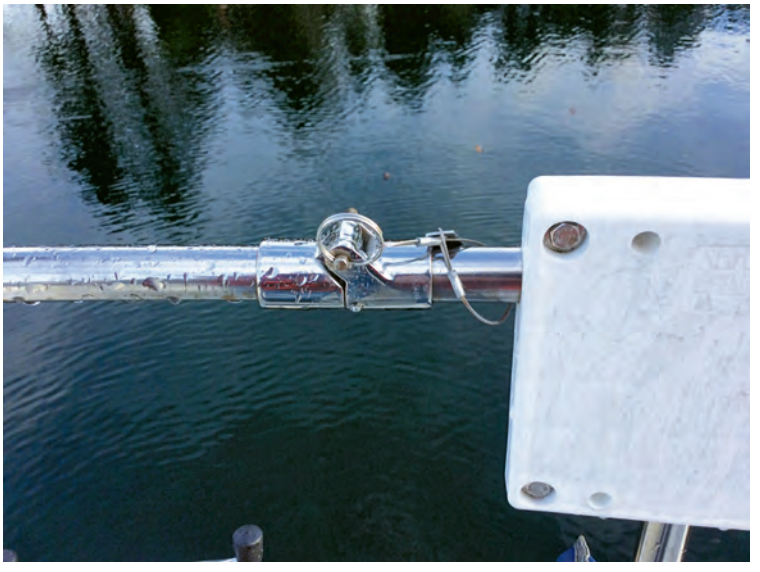
—Andy Vine, Cortes Island, BC

Michael Robertson responds:

Thanks for your feedback, Andy, and I'm sorry you took offense. I assure you that no offense was intended, but re-reading my response to Peter, there's no way I could call it a trite dismissal.

Peter wrote about why he loves the magazine and expressed his hope that, "in making the changes you need to make, you don't throw the baby out with the bathwater." I was happy he wrote that because the changes were necessary and we were careful in making them, excited to share them, and hopeful (and confident) they would be well received. Peter's letter gave me an opportunity to assure any readers who shared his understandable concerns that our hand on the helm is steady, no editorial changes forecast, no bathwater thrown out with the baby. Three issues later, I hope that's evident.

In addition to being editor, I'm part owner of this magazine. I've said to others that taking this on after Karen and Jerry retired is both a blessing and curse. It's a blessing because this is literally my dream job and I feel like the luckiest guy in the world. It's a curse because Karen and Jerry dropped everything in their late 40s and put their life savings into starting Good Old Boat. *Then they spent 20 years nurturing and growing* Good Old Boat*; it's still their baby and it's beloved by readers. It's my job, working in the most challenging of industries, to not fail their vision, to not disappoint readers. You said that your generation does not take lightly to change. Based on the responsibility I have, you can appreciate that I do not make changes lightly. But change is nonetheless necessary. It's my job to shepherd* Good Old Boat *through inevitable change and make sure it remains the sailing magazine for the rest of us. (And that tagline is still in the magazine, every issue this year, have you spotted it?)*



The Right Stuff

I read the article by Alan Culpepper ("Gated Access," January 2020) and I agree with the editor's sidebar about using marine fittings. Years ago, I did a similar modification to the stern pushpit rail on my Ericson 27 (below). I used two stainless steel bimini fittings, hinged fittings the same 1-inch diameter as the rail. I spent more than the $20 Alan spent. I cut the rail, inserted a hinged fitting, and orientated the fitting so that the cut end could rotate up. I modified the other hinged fitting by removing the hinge pin and replacing it with a removable pin. The strength of the rail was retained and easy access was created.

—John Askitis, Parksville, BC

Lithium Lover

Thanks for giving lithium iron phosphate ($LiFePO_4$) batteries their due ("Taking Charge," March 2020). However, I believe you overstated the complexity of a lithium-ion battery bank and missed a key benefit.

A $1,000+ battery management system (BMS) is only required for large, multibank systems with multiple charging sources, such as alternator, wind, solar, and shore-power. For a single bank that charges only from

solar, the BMS built into the battery and a properly set charge controller is sufficient.

A key benefit of lithium-ion batteries is their ability to charge much more quickly than lead acid batteries. Accordingly, they're always able to make use of all the solar and wind power generated to recharge them.

Consider a 100-amp-hour lithium-ion battery bank and a 200-amp-hour lead acid bank. Both start fully charged, and both receive a 100-amp-hour overnight draw, the most each bank could provide without damage. Both are recharged from a 300-watt solar panel (according to the "one-third" rule of thumb, this panel should make available 100 amp-hour on a typical tropical day). Ignoring daytime loads, this 100 amp-hours is sufficient to fully recharge the lithium battery, as it can absorb the entire panel output. However, despite the same 100 amp-hours having been available to the lead acid battery, as the sun sets, that bank will be only partially charged. This is because the lead acid battery is only about 85 percent efficient when accepting a charge, and as the battery becomes charged, its ability to accept current decreases in proportion. The effect is that the charge controller will reduce the current to the battery.

—Ed Davis, Spring City, Pennsylvania

Drew Frye responds:
Thank you, Ed. I agree with most of what you wrote. Charging efficiency, as you explained it, is a big advantage of LiFePO4 batteries. Because there is less internal resistance, they continue to accept full current throughout the charging cycle. However, the problem with simply charging LiFePO4 batteries with a charger intended for lead acid batteries, even if the output voltage of the charger is adjusted to be appropriate for lithium-ion batteries, is that today's smart chargers are set to charge according to the needs of lead acid battery chemistry, such that the charger will taper the output as the battery voltage increases.

The charging profiles of the two chemistries are very different, and a lithium-ion battery should not be subjected to the float phase.

I agree with you that there should be a middle ground, something between relying on an existing charger to charge lithium-ion batteries and an expensive, complex, lithium-ion-specific BMS. But I'm not aware of anything to fill the gap. And, I do know of two people who tried to use lithium-ion batteries as drop-in replacements, connected to the same charge controller that they used with their lead acid batteries, and neither of them realized a lifespan longer than they'd realized with the AGMs they'd replaced—but they did pay a lot more. In my opinion, if a battery bank is not large, cycled hard (deep discharge), and cycled often, lead acid batteries remain the better value.

"I'm pretty sure this green buoy is off station!" wrote Steve Christensen when he sent this photo taken from the banks of the Mississippi River, near Hastings, Minnesota, just south of St. Paul.

Do you have your own interesting photo of an aid to navigation? Send it to michael_r@goodoldboat.com and if we use it here, we'll send you a *Good Old Boat* hat or shirt!

O-no!

I just received the January 2020 issue and I love it. But I began my working life many years ago as a printer and I can't help myself: in "A Hidden Gem," in the first paragraph of the article, "Grampian" is misspelled with an "o" at the end, instead of an "a." I own a Grampian 30 and before that a Grampian 26. Good old boats!

—James R. Donovan, Braintree, Massachusetts

Doh! Begun in 1962, Grampian Marine was one of the first manufacturers of fiberglass sailboats in Canada. How we (writer Lee Brubacher shares no blame) made and missed this spelling error is beyond us. Thanks, James.

—Editors

Apparently Not

As with many sailboat reviews, your Farrier F-33 review (January 2020) describes upwind performance in terms of apparent wind, "...I was able to pinch to 25 degrees apparent." Apparent wind angle should not be used as an indicator of a boat's pointing ability. Only the true wind angle tells the story. (And an expensive set of instruments calibrated to correctly display true wind angle is not needed.) An easy way to determine pointing ability begins with sailing close-hauled. When the boat is trimmed up and in the groove, record the compass heading. Tack and get trimmed up on the new tack. Subtract the port and starboard tack headings and divide by two. The number will be the true wind angle your boat sailed on the beat. Even easier, record your course over ground (COG) from your GPS on both tacks and then subtract and divide by two. This number tells the true progress you are making to weather. Of course, this approach nicely factors in leeway, such as from current, but if there is a current, this result is then inaccurate with respect to pointing ability.

With composite sails and an 8-foot keel, we can sail our Beneteau a little closer than 45 degrees to the true wind. Some of our catamaran friends boast that they can point 30 degrees apparent.

continued on page 60

We Want to Hear from You

Send your letters to michael_r@goodoldboat.com. If we can't run your letter in this space, we'll try and get it into *The Dogwatch*. Speaking of which, are you getting *The Dogwatch* in your email inbox? It's free and the content is original. If you're missing it, email brenda@goodoldboat.com.

Watkins 27

A Beamy, Obliging Pocket Cruiser

BY ALLEN PENTICOFF

A sailor's reasons for buying a boat are myriad and often mysterious; in the case of James and Barb Shroeger of Traverse City, Michigan, James admits to being "possessed by demons" when he came across a Watkins 27 that had fallen on hard times and had been donated to a nonprofit.

Boats have been part of James' life since his grandfather built a Windmill. Among them was a Clipper 26, then a Cal 28 on which the family made several three-month cruises of the North Channel of Lake Huron with two children and a poodle. A derelict 24-foot Paceship they restored became a *Good Old Boat* story ("Renewed *Serendipity*" Jan. 2006).

After *Serendipity*, along came the Watkins 27. Named *Sundew*, its long restoration has inspired many projects reported in *Good Old Boat*, including lovely double companionway doors as well as an oak-and-mahogany cabin sole. While they've cruised *Sundew* some, mostly James and Barb have daysailed her in the crystal-clear waters of Traverse Bay.

When I visited *Sundew* for this review, the Shroegers were selling their boat of the last 14 years to a young local couple, fledgling sailors Bill and Lisa Westling, so they could move on to a Catalina 36. I sailed with both couples out of a marina in picturesque Northport, Michigan.

History

Four Watkins brothers formed Watkins Yacht and Marine of Clearwater, Florida, in the early 1970s. In 1973, they produced their first sailboat, the Watkins 23, which was modeled after the then-popular Venture 22/23. Altogether the company would, in its various ownership iterations, continue until 1989, building 1,280 sailboats from 17 to 36 feet.

Other than the muddy lineage of the W23 (reportedly designed by Jopie Helsen and modified by Watkins), the Watkins 27 (W27) was the only sailboat not designed in-house. Walter Scott, who also designed the Allmand 31, drew the 27. Production began in 1977. At that time the Watkins 27 was considered a better value than the Catalina 27, featuring better hardware and construction for the same price. The boats were sold ready-to-sail, including life jackets, dock lines, and fenders, and at one time there were more than 20 dealers.

Watkins offered the boat with a centerboard/stub keel, shoal fixed keel, or deep fixed keel, but of the 514 W27s built, nearly all feature the shoal fixed keel. The company also built seven pilothouse (W27P) versions in 1981.

In 1979, after building 600 boats, the Watkins brothers sold the business to a private individual. At about the same time, Al G. Larson of Auroraglas had bought the Columbia molds and built the Coronado 35 as the Portman 36. Larson merged Auroraglas with the new Watkins owner in 1979, and the Portman 36 became the Watkins 36. To promote a big-boat feel with features of the 36, Larson redesigned the W27 as the W27 Mk II, with an outward flange hull-to-deck joint, new keel, all opening portlights, and new interior design.

In 1984, the W29 replaced the W27 with major modifications, yet retained the same interior as the W27 Mk II.

Watkins Yachts was sold to McLaughlin Body in 1986. A year later, when Larson left the company, it was mostly building powerboats, though the sailboat line was

Not known as a speed demon, the Watkins 27 is a stable, forgiving boat that's great for sailors new to the game.

The Watkins 27 features a jaunty sheer that rises subtly aft, at right.

The foredeck is clean with only a single cleat and chain pipe to get in the way. With the roller furling headsail, there's plenty of room for hanging out up here, at middle right.

The boat's wide beam allows for adequate space to walk past the outboard upper and lower shrouds. The cabin trunk features a tinted hatch forward and four teak handrails, at bottom right.

kept alive with limited production. In a further modification, the W29 (formerly the W27) gained a reverse transom to become the W30. After building one last W30 in late 1989, McLaughlin ended production. Except for the W25 mold, which was sold and reused to produce the popular Com-Pac 25, the remaining molds were abandoned.

Design

With a 10-foot beam, the W27 has a somewhat stubby look, particularly with its blunt bow and inward-angled topsides above the rubrail. This generous beam, however, makes for good form stability and a nice stiff ride that can stand up to strong winds. The popular shoal draft is 3 feet 8 inches with 3,500 pounds of ballast against a total displacement of 7,500 pounds. If you come upon a centerboard version, you'll find its board-up draft is 3 feet even and board down draft is 7 feet.

With a displacement/length waterline ratio of 252 and a sail area/displacement ratio of 14.8, both conservative numbers, the boat isn't fast, but the relatively long waterline increases hull speed. Most fleets have PHRF ratings of 234 seconds per mile; for comparison, a Catalina 27 rates 204 and the performance-oriented J/27 around 123.

Construction

The hull-to-deck joint on models before 1979 is a shoebox arrangement (prone to leaking); post-1979 boats have an outward flange. Fiberglass construction was woven roving and mat. The deck and hatches are reinforced with encapsulated plywood. Generally, W27s were equipped with a variety of Yanmar diesels of 8, 12, or 22 horsepower. However, a few had gas engines, both inboard and outboard.

The long fin keel is encapsulated lead, and the rudder is attached to a partial skeg.

Deck and Rigging

The W27 features stainless steel bow and stern pulpits with single lifelines between them. The foredeck is quite wide but lacks an anchor locker. I noted a very sturdy cast stemhead fitting and substantial cleats.

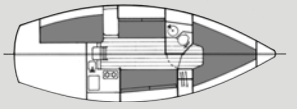
The cockpit is roomy but rather shallow. The seats are set quite far apart and garner a Penticoff Napability Index (1-5 scale) rating of only a 3 due to being long but narrow. It's not possible to brace against the opposite seat while heeled underway, and the coaming hits one in the back. It seems the designer could have easily made the seats wider and pushed them together a bit to fix both issues. That said, *Sundew* is socially spacious for a 27-foot boat.

The starboard cockpit locker is deep while the port locker is shallow, and the emergency tiller is handy to the helm. The vertical transom is a great place to mount a swim ladder. Two cockpit drains keep the footwell dry.

The W27 has a masthead rig with double inboard lower shrouds. Lines are led aft to a cabintop winch to port. The mainsheet is led to the end of the boom where it would benefit from the addition of a traveler; as it is, the mainsheet can interfere with the helm. *Sundew* is equipped with lazy jacks, a 150 percent genoa on a furler, and new self-tailing winches on the cockpit coamings.

Accommodations

If you like wood, you will love this boat. There is plenty, particularly in the cabin. But your first encounter is in the wide companionway before heading down the wood three-step ladder. *Sundew* has a lovely oak-and-mahogany sole. James glued up two boards



ILLUSTRATIONS BY ROB MAZZA

Watkins 27

Builder	Watkins Yacht and Marine
Designer	Walter Scott
LOA	27'0"
LWL	23'8"
Beam	10'0"
Draft	3'8"
Displ.	7,500 lb
Ballast:	3,500 lb
Bal/Displ.	46.67
Displ./LWL	252
Sail Area	353 sq. ft.
SA/Displ.	14.8
Comfort ratio	21.9

Some folks like large diameter steering wheels, but they often interfere with one's passage to the helm—not a problem on *Sundew*, at top left

The cockpit seats are long enough to lie down on, and seatbacks are high but not angled for comfort. The port locker, while shallow due to the quarter berth below, has good room for stowing cleaners, rags, parts, and lines, at left middle.

The Shroegers installed custom swinging companionway doors to make entry easier and provide more light below, at bottom left.

One owner says, "Engine access was OK from the front, but access to the rear of the engine and the stuffing box was through a cockpit locker and was a tight fit," above.

at a time with 3M 5200 so there are no screws. Beneath the sole is a deep bilge. The traditional saloon is quite wide with a teak-veneer bulkhead forward where there is storage and a large fold-down table with fiddles. Solid teak is copious throughout.

The overhead is a textured fiberglass liner with teak accent ribs. The W27 really needs overhead grab rails due to the wide saloon. Port aft is a tight quarter berth (thus the shallow locker above).

Both galley countertops feature granite that James installed, and the galley itself is small but functional. The settees are long and wide enough to use as berths; the downside is that they're rather high off the cabin sole, so your legs tend to be impinged at the knee by the cushion fiddles (mostly due to the present softness of the cushions). Plentiful storage above the seatbacks is enclosed by sliding acrylic panels.

Under Sail

Motoring out, the W27 has typical inboard diesel handling, with little prop-wash vibration felt in the wheel. It turns quite smartly under power. James claims the 8-horsepower single-cylinder Yanmar diesel sips a half-gallon per hour at 6 knots.

The steering felt a bit stiff, as James had the friction knob

cranked down hard. He prefers it on the stiff side to help with tracking. He says with loose friction, it does not track well: "It has a mind of its own."

Standing at the wheel was comfortable with the mainsheet off to one side; it is easy to reach from behind the helm. Sail work is very easy with the huge flat cabintop.

While under sail the boat tracked decently but needed a fair amount of attention to keep it on heading. Due to the helm stiffness and design I could not feel through the wheel what the boat was doing. With the stiff steering, the helm felt mechanical, like steering a lawn tractor—point it in a direction and watch. The helm was not telling me what was happening.

While one can steer from either seat, it isn't fun. Visibility was good at all times. Standing to steer felt natural. I did not note any significant weather helm. Tacking was quick enough, and although it's no sport boat, it's fine for cruising. Downwind was no-brainer sailing. While our test sail was under ideal conditions, the Watkins 27 performed quite well.

Conclusion

The W27 is a remarkably wide boat for its length and may make a compact home in a slip as well as an obliging sailing platform. Watkins boats were sold to novices, and this very stable boat remains a good place to learn—just ask Bill and Lisa, who are now becoming sailors.

At sailboatlistings.com I found 16 Watkins 27s listed for sale, ranging from 1978 to 1989. The highest price was for a 1981 at $15,000, and someone was asking $14,500 for a 1978. Low end was a couple of 1979 boats going for $4,000 with plenty of other boats priced between. Equipment and condition will be everything in pricing these boats. There are a few condition problems on some models, and it would be best to consult the excellent owner website, watkinsowners.com, before proceeding to inspect a potential purchase.

Allen Penticoff, a Good Old Boat *contributing editor, is a freelance writer, sailor, and longtime aviator. He has trailer-sailed on every Great Lake and on many inland waters and has had keelboat adventures on fresh and saltwater. He owns an American 14.5, a MacGregor 26D, and a 1955 Beister 42-foot steel cutter that he stores as a "someday project."*

Visit our YouTube channel for more on this boat review.

Comments from Owners of the Watkins 27

I owned a 1978 Watkins for years. She was a great boat. I cruised and lived aboard for 18 months. Best thing about her was she was small and easy to singlehand. Being small she had a tendency to rock 'n' roll and be a bit uncomfortable in high seas or extreme chop, however she handled them like a trouper and never faltered. On the Intracoastal she was a joy. The Yanmar diesel ran great and sipped fuel. I would buy another one any time. A solid well-made boat with lots of room and plenty of heart and spunk.

—Ken Arscott
Alexandria, Virginia

I have a '78 that I have owned for over 30 years. They are great little cruising boats. They have more room than any 27 I've seen. They handle rough weather well and are very forgiving. They are built heavy and rigged heavy. My only complaint is the deck hardware wasn't mounted to prevent water from getting to the wood core. Repair of soft core is expensive.

—Jim Brewer
Yorktown, Virginia

My first "big boat" was a 1984 Watkins 27 that I purchased in 1994 and sailed for 10 years in the mostly protected waters of the Indian River Lagoon on Florida's east coast. With its shallow draft of 3 feet 8 inches, roomy interior and simple setup, it was a great gunkholer. The overall fit and finish was decent considering it was a low-cost production boat. The interior had a good amount of elbow room, a comfortable V-berth, and adequate storage for short cruises. The galley was small but functional.

Calypso had a Yanmar 13-horsepower raw-water-cooled diesel. The boat felt underpowered when driving into a strong wind and chop so I had the prop re-pitched, which helped get some power back.

The boat had a three-point mainsheet setup instead of a traveler, which limited mainsail trimming. *Calypso* sailed the best when the wind was on or aft of the beam, although it tended to corkscrew with a following sea. The boat didn't point very well, probably due to its beamy nature and shallow keel.

Two major issues I had were some large blisters on the keel and a leaking inspection port (fuel tank gauge below) in the cockpit sole that rotted out the core and corroded the fuel tank bottom. Other than that, I didn't see any issues that were design or build flaws.

The Watkins 27 is a comfortable pocket cruiser and not too bad looking when viewed at the right angle.

—Joe Cloidt
Indialantic, Florida

I owned my Watkins 27, *Iphigenia*, for two years. I bought her in Annapolis, Maryland, and cruised her to Titusville, Florida, as our maiden voyage. She was in fixer-upper condition and I worked on her en route. The features I sought were strength, standing headroom, and shallow draft, as my wife and I planned cruises to the Keys and Bahamas. Her 8-horsepower diesel was both blessing and curse, for although reliable, against a strong tidal flow and adverse wind at Jekyll island I found us making .5 knots into a 4-foot chop. The boat was sound, and I stayed dry in the 25-mph wind.

Sailing characteristics were as to be expected—basically a lifeboat with a sail. She pointed reasonably well at 38 degrees and stayed dry in puffs. She was also very well balanced with less weather helm than expected with her shallow draft.

My favorite things were the large cockpit and affordability. What I liked least was deck drainage, as we always had two pools of water between scuppers with the associated algae. I would highly recommend this boat to anyone from a beginning sailor to old salt like me for fun coastal cruising.

—George Herman
Winter Springs, Florida

The compact galley incorporates an alcohol stove, small sink, and ice box, with some stowage behind and below, at top left.

Jim describes the V-berth as "cozy" for two. The fiberglass pan or liner is evident here; it's easy to clean but rather harsh and cold looking, at bottom left.

The layout below is straightforward with port and starboard settees, a drop-leaf table mounted on the bulkhead, and a wide sole, at top right.

The head door and cabin storage doors are louvered for ventilation. The head has a wood grate floor and 1970s-vintage paneling ventilated by an opening portlight and cowl vent, at middle right.

For a 27-foot boat, the Watkins offers room and accommodations ample enough even to allow for living aboard, at bottom right.

Watkins 27

. . . and Two More Spunky, Popular Little Big Boats

STORY AND ILLUSTRATIONS BY ROB MAZZA

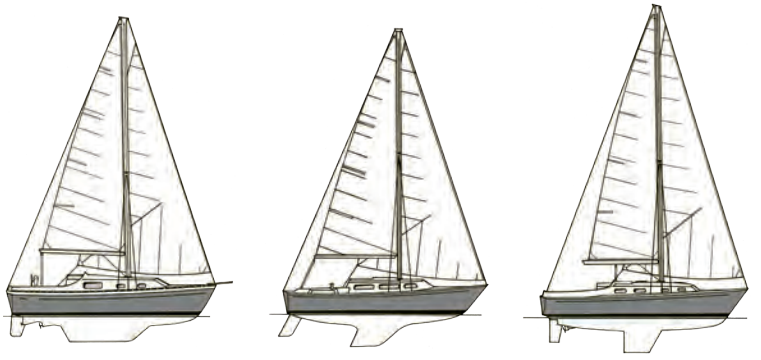
Twenty-seven-footers should have a special place in the history of fiberglass yacht design. At 27 feet you could incorporate all the features of a true "yacht" as opposed to a daysailer or weekender—that is, standing headroom, full galley, enclosed head, inboard engine, usually an inboard rudder, wheel steering (standard or optional), and enough accommodations for a small family to take a couple weeks' vacation, or even embark on longer voyages.

In retirement, my father-in-law would take his C&C 27 from Lake Ontario to Morehead City, North Carolina, every fall and return in the spring. These boats sold well, and while they weren't considered entry level, per se, they did entice a lot of families into sailing. Indeed, the C&C 27 stayed in production longer than any other C&C model, going through five iterations and selling more units than any other model. So, it's more than appropriate to examine three 27-footers from this period.

In his review, Allen mentions that in her day the Watkins 27 was considered a better value than the Catalina 27, so it seemed logical to include the Catalina 27 as one of our comparison boats. It is also worth noting that the Catalina 27, like the C&C 27, stayed in production for many years.

As the third boat I've paradoxically picked the John Cherubini-designed Hunter 27, rather than the C&C 27, to introduce another Florida-built boat as well as to include another builder with whom I was once involved.

Though the Hunter 27 also stayed in continuous production for many years, by the time I arrived at Hunter in the early '90s, the company was no longer building the 27, since the boat was readily available on the used market. Also, it was no longer a profitable boat to build. At less than 30 feet you were lucky to cover your costs, and for larger builders



	Watkins 27	Catalina 27	Hunter 27
LOA	27'0"	26'10"	27'2"
LWL	23'8"	21'9"	22'0"
Beam	10'0"	8'10"	9'3"
Draft	3'8"	4'0"	4'3"
Displacement	7,500	6,850	7,000
Ballast	3,500	2,700	3,000
LOA/LWL	1.14	1.23	1.24
Beam/LWL	.42	0.41	0.42
Displ./LWL	252	297	293
Bal./Displ.	47%	39%	43%
Sail Area (100%)	353	342	343
SA/Displ.	14.8	15.15	14.97
Capsize No.	2.0	1.9	1.9
Comfort Ratio	21.9	25.0	23.7
Year Introduced	1977	1971	1974
Designer	Walter Scott	Frank Butler/Bob FInch	John Cherubini
Builder	Watkins Yachts	Catalina Yachts	Hunter Marine

such as C&C, smaller boats were often considered loss leaders, justified only as a way to bring owners into the corporate family and trade up eventually to a larger boat. The tongue-in-cheek philosophy at the time was you would lose money on every unit, but you hoped to make it up in volume. Of course, that never happened.

The oldest of these three 27-footers is the 1971 Catalina. She reflects that era of yacht design in her moderately swept keel and rudder. By 1974, the 27 Hunter reflected the influence of the more upright Peterson keel, and the Watkins, launched in 1977, has a more cruising-oriented, longer keel with the slightly shallower draft. The Catalina and the Hunter were obviously aimed at the yacht club racing market, while the Watkins, not so much.

It is also interesting to look at the increase in beam from the older Catalina at 8 feet 10 inches, to the Hunter at 9 feet 3 inches, to the Watkins at a full 10 feet. So, while the keel configuration of the Watkins does not point to a performance heritage, her increased beam, heavier displacement, heavier ballast, and higher ballast/displacement ratio all indicate a boat that can certainly stand on her feet in a breeze.

The Watkins also has the edge in waterline length, being over 1½ feet longer than the Hunter and close to 2 feet longer than the Catalina. Despite her heavier displacement, that longer waterline results in the lowest displacement/length waterline ratio of 252 compared to 297 and 293 for the Catalina and the Hunter, respectively.

The Watkins also has the largest sail plan at 353 square feet. However, because of her heavier displacement she also has the lowest sail area/displacement ratio of 14.8. The Catalina, with a sail area of 342 square feet on the lightest displacement, has the highest sail area/displacement ratio of 15.15, compared to the Hunter with essentially the same sail area, but on a slightly heavier displacement, resulting in a sail area/displacement ratio in the middle at a still-respectable 14.97.

The wider beam, despite the heavier displacement, pushes the Watkins capsize number to 2, while the narrower beams despite lighter displacement result in slightly more conservative 1.9 values for each of the others.

The sail plan configurations are almost identical with all three incorporating masthead single-spreader rigs with double lower shrouds, overlapping 150 percent headsails, and moderately high aspect ratio mains, with only the Hunter approaching anything that could be called "ribbon."

Performance around a racecourse would very much be a function of wind speed and point of sail. The heavier Watkins with the substantially longer waterline length would certainly have an advantage in higher wind strengths upwind and while reaching at speed. However, the lighter Catalina with her higher sail area/displacement ratio and lower wetted surface might well hold her own in lighter air despite her shorter waterline length.

On the whole, all three are excellent examples of this very popular size range from the 1970s.

Rob Mazza is a Good Old Boat *contributing editor. He set out on his career as a naval architect in the late 60s, when he began working for Cuthbertson & Cassian. He's been familiar with good old boats from the time they were new and had a hand in designing a good many of them.*

Staying Power

Adding an inner forestay expands sail plan options and can make for better boathandling.

BY ED ZACKO

When my wife, Ellen, and I began our search for an ocean-going cruising boat, high on our list of requirements was that it be a cutter—a simple, single-mast rig with one mainsail and two headsails and a mast set further aft than on a sloop.

The cutter has several benefits. The larger foretriangle allows the total sail area to be proportioned more equally between the three sails. Two ready headsails offer flexibility and efficiency, precluding the hassle of swapping a large genoa for a smaller jib when conditions warrant. The dedicated intermediate stay set aft and closer to the mast permits a staysail in strong winds, and pairing it with a deeply reefed main (or trysail) better balances the helm. And the added forestay offers security when going to windward and makes for easy short tacking in harbors under staysail alone.

Unfortunately, we never found a cutter that satisfied our other requirements. And, when we fell in love with the Lyle Hess-designed Nor'Sea 27, we bought a bare hull and deck to complete in our backyard, figuring we could fairly easily build a cutter rig for it. Our ideas were quickly dashed by Lyle himself. He pointed out that designing and building a cutter rig would result in a domino effect of additional changes that just weren't worth it.

So, we went sailing on *Entr'acte* the sloop, and four years later, found ourselves in Portugal anchored next to world-cruising veterans Hal and Margret

Entr'acte **flies along with the cruising chute's tack strap attached to the new inner forestay, above.**

> "Our inner forestay has been a rousing success with results far better than we had imagined."

Roth. Their sloop, *Whisper*, proudly sported an intermediate forestay they had added, which Hal said provided nearly all of the advantages of a full-fledged cutter. I wondered about doing the same aboard *Entr'acte*. "It won't be a cutter," Hal said, "but it will be pretty close. You just have to be very clever about how you do it—and keep things simple!"

That meeting and conversation came full circle as Ellen and I prepared *Entr'acte* for our second voyage and debated adding roller furling. An intermediate stay like the Roth's, we reasoned, would offer redundancy if the headsail furler broke, and it would let us set a smaller headsail in windy conditions, taking the burden off that single headstay.

Attaching an inner forestay between the mast and deck would be easy. Our challenge was to position it correctly to gain the best possible sail plan options and to make it easy to stow when not in use.

Below, Ed added a robust deck plate under the foredeck with an eye to accept a turnbuckle and wire (at left) that transfers the load to the foremost interior bulkhead, which is glassed to the hull. (at right).

Forestay Positions

Our inner forestay would have three positions. The first would attach immediately to the main stemhead fitting just aft of the roller furling drum. In this position we could hank on the 110 percent working jib or a large nylon drifter. This would also be a better location to attach the sliding tack strap of our new asymmetric cruising chute. This strap is designed to wrap around a furled genoa and slide up and down to adjust the shape of the cruising chute's luff, which might be all right for a Sunday afternoon. But for long passages we did not like the idea of that strap chafing mile after mile on a furled, expensive genoa and imparting needless wear on furling gear bearings for thousands of miles when not in use. Far better to have that tack strap ride on its own forestay to save the wear and tear.

The second position was 3 feet back from the primary forestay. From this position we could set our storm jib as a staysail for short tacking into an anchorage. It would also improve the boat's handling in heavy winds. As a mainsail is reefed, the length of the foot decreases and moves forward, shifting that sail's center of effort toward the mast. But when a headsail is furled under the same conditions, its center of effort remains unchanged, so the net movement of the center of effort is forward, which tends to unbalance the helm. Setting a headsail 3 feet further aft brings that sail's center of effort aft, helping to balance the helm in heavier winds.

The third position would be stowed for when this stay is not needed. In our case, the wire, detached from its turnbuckle, was just the right length to clip onto a ¼-inch turnbuckle attached to a bail on the starboard middle stanchion. The turnbuckle would provide just enough tension to keep it from slopping around, allowing the stowed stay to serve also as a stable handhold when needed. Attached

Fortuitously, measurements landed the aft attachment point for the new headstay between the two large cleats at the narrowest clear point on the foredeck. This is where the deck is least likely to flex under load, and the foredeck remains clear, below.

The mast band is attached with ¼ x 20 machine screws drilled and tapped. It's further secured through a ½-inch stainless steel stud that passes completely through the mast and compression tube. The stud also provides an attachment for tangs for running backstays, at right.

In the forward position, the stay is attached to a permanent toggle installed in the stemhead fitting's aft-most opening. The stay is just clear of the furling drum and allows for easy hoisting and lowering of sails.

in a straight line to the stanchion, the new stay would be out of the way until needed with no bends or extra hardware.

Stay Installation

Deciding where exactly to mount the stay was a product of trial and error with cheap line. We finally determined it was best to mount the deck attachment 3 feet aft of the main stemhead fitting and the mast band 3 feet below the masthead. This positioning would keep the new stay parallel to, and far enough away from, the main forestay to prevent the two from tangling with each other, a common problem with double forestays. With the judicious use of extra toggles, we could easily move the lower attachment point from the fore to aft positions, ensuring it fit perfectly in either location.

The standing rig consisted only of the forestay and a 7/16-inch bronze turnbuckle. (The price of a proper "highfield lever" to tension the new stay took our breath away. We opted instead for a spare turnbuckle with toggle and quick release pins. Simple, yet effective.)

The running rig was simply a halyard and two jib sheets. We didn't add additional winches or lead blocks, figuring that both headsails would never be used on the same tack at the same time. When we wanted to hoist a staysail, we employed the unused genoa winch.

Below decks, we installed a 1 x 6-inch white oak plank which completely traversed the deck. This one large beam effectively increased our deck thickness and served as a substantial backing plate not only for the forestay but for the deck cleats as well. This was a distinct improvement from the two smaller individual backing blocks we had before.

To prevent leaks and mold, we thoroughly bedded the oak beam and both deck plates with Dolphinite compound. We always use Dolphinite whenever we bed wood to fiberglass or wood to metal because, unlike other compounds, it soaks into the wood to best seal out water. It also boasts anti-fungicidal properties that prevent rot. Dolphinite never gets hard and has always proved easy to disassemble, even after many years in place.

Putting it to Work

Over time we have experimented with the inner forestay and have learned a lot. We discovered an especially interesting setup on our 2003 Atlantic crossing. The wind was in just the wrong place, not quite dead astern but far enough on the quarter so the mainsail completely blanketed the genoa, rendering it quite useless. Poling out the genoa on the other side for a dead run would require a course change 15 degrees to port of our rhumb line. To get the genoa to draw properly would likewise mean a 15- or 20-degree alteration to starboard.

Because of the relatively light wind and pronounced cross swell, the large cruising

Storing the Stay—EZ

When it came to storing our inner stay when not in use, we got lucky and were able, by removing its turnbuckle, to attach it to a stanchion with a shorter turnbuckle and provide enough tension to keep it safely snug.

But, storing the inner forestay is usually easier said than done. Once disconnected at the deck fitting, the stay is too long to stow in a straight line from the mast fitting. Bending the stiff and inflexible 1 x 19 rigging wire causes work hardening, which dangerously weakens the wire. If your wire stay is too long to stow in a straight line, it must be led around a large, smooth radius before it is put under tension for stowage.

A stowage clip, also known as an inner forestay clip or inner stay storage bridle, solves the problem. This simple piece of gear clips onto the stay and features an eye for a strop that can be used to draw the stay away from the mast. With the strop leading forward to one anchor point on deck, the stay can be tensioned with its turnbuckle to a second attachment point slightly aft.

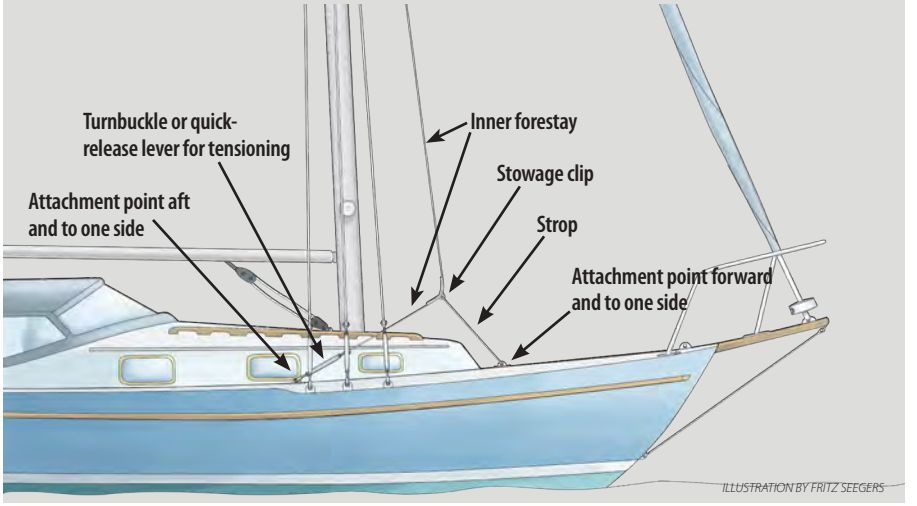


ILLUSTRATION BY FRITZ SEEGERS

Resources

Metal fabrication: stainlessoutfitters.com
Inner forestay stowage clip: rigrite.com

When not needed, the inner stay is attached to the starboard center stanchion, held securely by a small ¼-inch turnbuckle. This allows enough tension to remove the slack so the stay does not flop around and can be reasonably secure if grabbed in a pinch, above left.

Because this project was in preparation for a transpacific crossing, Ed added tangs to the mast band for temporary running backstays. He made the backstays by splicing thimbles into lengths of Amsteel line. Simple block-and-tackle setups supply tension, above middle.

When Ed and Ellen built *Entr'acte* they installed Schaffer genoa cars, which have large, wide blocks to allow multiple sheets. This meant they didn't need to add more blocks to accommodate the additional sheets, above.

chute was not a viable option. We certainly could have sailed a day at a time gybing onto alternating tacks, but there had to be a better solution. Finally, we came onto our desired course, trimmed the mainsail and genoa on starboard tack, hoisted our 110 percent working jib as a staysail with the inner forestay in aft position, and poled *it* out to starboard. Because the jib was small and sailing by the lee, it did not drive us very well, but it did funnel the wind quite nicely into the large genoa, tricking it into drawing properly. Once set, we continued comfortably on our way for the next five days.

Our inner forestay has been a rousing success with results far better than we had imagined. It's a simple and economical addition to our cruising rig and gives us most of the advantages of a proper cutter. After sailing thousands of miles with this system, the only improvement we might make would be to add a dedicated halyard winch.

Ed Zacko is a Good Old Boat *contributing editor. Ed, the drummer, and Ellen, the violinist, met in the orchestra pit of a Broadway musical. They built their Nor'Sea 27,* Entr'acte, *from a bare hull, and since 1980 have made four transatlantic and one transpacific crossing. After spending a couple of summers in southern Spain, Ed and Ellen shipped themselves and* Entr'acte *to Phoenix, where they have refitted* Entr'acte *while keeping up a busy concert schedule in the Southwest U.S. They recently completed their latest project, a children's book,* The Adventures of Mike the Moose: The Boys Find the World.

The staysail rigged, with the inner stay set in the aft position. To use this, Ed rolls in the genoa and stows the sheets forward, out of the way, at left.

A 1 x 6-inch oak plank added beneath the foredeck replaced two smaller backing blocks and beefed up the entire area where two bow cleats and the forestay are attached, below.

Wireless Options—Jamie Gifford

An inner forestay adds options for sail plan and mast control. But the location of an inner forestay can mean that it's sometimes an inconvenience when not in use. It can interfere with tacking or prohibit dinghy storage on the foredeck. Making the inner forestay removeable alleviates some of these drawbacks but creates new challenges. Stowing the detached forestay can be difficult if long length requires deflecting wire around to its anchor point. And once stowed, the stay may bang into the mast and spreaders or chafe against a tightly sheeted genoa.

Using high-strength, low-stretch line instead of traditional wire mitigates these problems.

Dyneema or Spectra line (same fiber, different manufacturers) offers several excellent characteristics for this application. Single-braid construction is very easy to splice. It has a soft hand and is so lightweight that it floats. This makes for easier stowing than wire and less chafing against rig and sail surfaces. These high-tech lines have good UV resistance, with tests revealing that 10 years of exposure degrades the material by about 50 percent. This isn't insignificant, but stainless steel also degrades (from corrosion and work hardening), and the line is easier to inspect.

All materials have their Achilles' heel. For these lines, it's chafe. Though very slippery and chafe resistant, an edgy object pressed against a loaded low-stretch line will damage it quickly. These same lines are available as double-braided and with a polyester cover, but while these features offer some chafe protection and UV blocking, they also are harder to splice and less slippery (important when hoisting/dropping sails). In my opinion, the gains don't warrant the compromises. It's best to minimize chafe by attaching sails using soft hanks of either webbing loops or soft shackles (made from Dyneema or Spectra) and to keep running gear from wearing against a low-stretch line stay.

On *Totem*, the Stevens 47 that my wife, Behan, and our three children circumnavigated on, the removeable inner forestay is made from Dyneema SK75. Three grades of Dyneema have appropriate strength and stretch characteristics for this application: SK75, SK78, and SK90. One-quarter-inch-diameter SK75 has a breaking strength of 8,600 pounds.

Totem also has a removable Solent stay, set parallel and close to the forestay and made from Dynex Dux. This is Dyneema line put through additional treatment that makes it even stronger and with lower constructional stretch.

In sizing Dyneema or Dynex Dux, I recommend increasing the diameter to account for the inevitable UV damage. And splice the ends around a thimble. No knots! Thimble-less or knotted ends result in tight bend radiuses that significantly weaken the line.

High-tech line is a nice solution for a removable inner forestay and has many other applications onboard. And besides, who doesn't like to show off a little DIY traditional ropework in techy materials?

The Light(s) Fantastic

Need emergency running lights? Try soda caps, PVC, and a little ingenuity.

BY JIM SHELL

On a recent sail approaching our anchorage at dusk, I switched on the running lights and saw the starboard light was out. We'd checked the lights before leaving, and they were working. We didn't encounter any issues because of the bad light and soon anchored safely. But that was luck, and relying on luck is poor seamanship. I realized that having a battery-powered running light that I could deploy quickly in this scenario would be a good thing. A light that clamped securely to the pulpit or pushpit rail—without the need for tools—would be ideal.

A while back I'd used 1-inch PVC pipe to make a stanchion clamp for the VHF remote microphone and decided to use the same approach for an emergency, temporary nav light. PVC is easily worked, heat moldable, and cements strongly to itself. We keep several identical 9-bulb LED flashlights aboard *Phantom* that we use often. Making a PVC pipe clamp to mount one of these bright flashlights would do the trick.

As the rail and the flashlights are both about 1-inch diameter, I cut 1½- and 1-inch-long pieces from a length of 1-inch PVC pipe. Then I cut a 1-inch-wide section from the side of each piece. A hand saw or Dremel would work; PVC is easy to cut. I then used PVC cement to attach the cut-out sections to the backs of the pieces to increase the thickness of the open pipes.

Next, I had to make the pipes tight enough to serve as clamps. For this step, I put each section of pipe into a vise, tightened the vise a bit to compress the tube, and softened the PVC with a heat gun. Using trial and error, I'd let the pipes cool, test to see if they were tight enough, and if not, I increased the vise's tension and heated them again.

Once I knew the clamps worked, I sanded the back of each double-thick section flat and then cemented them together, flat surface to flat surface. I fixed them at a 90-degree angle, but that angle could be adjusted to accommodate rail angles.

The emergency running light in place on the bow rail.

Now came the actual emergency running lights. I needed some red or green translucent material to color the lights for use on the bow. I found that colored soda bottle caps worked very well. I wrapped electrical tape around the outside of the flashlight lens so that the caps would fit snugly.

My flashlights are bright enough that with an unaltered Coca-Cola or Canada Dry Ginger Ale cap affixed, the red and green light emitted was bright enough to do the job—they're just as bright as my built-in factory nav lights. For a dimmer flashlight, it might make sense to sand the outside of the cap until the material is thin enough allow enough light to penetrate.

During our cruises, we keep these lights snapped on to the dodger supports for occasional cockpit illumination. If we find we need one, it's easy to relocate to the appropriate spot, and the red and green caps are just a cold soda away.

Jim Shell and his wife, Barbara, sail their Pearson 365 ketch off the coast of Texas.

(Left to right) First, Jim cut the PVC longitudinally; the larger section will be the clamp while the smaller cut-out piece will help form the base.

Gluing the smaller cut-outs onto the pipe made for a sturdier clamp. PVC bonds wells to itself with PVC cement.

After sanding the backs flat, Jim glued two pipe pieces together at 90 degrees, one to hold the rail, the other to hold the light.

Old Salts

A lifetime's love of sailing was inspired by a most inauspicious early voyage.

BY D.B. DAVIES

The curious thing is the way it creeps up on you. One day you're asking the old salts at the club about replacing shaft bearings, dealing with loose-footed main sails, or installing lazy jacks, and suddenly, young sailors are asking you about these things, and you realize that somehow, without even noticing the passage of time, you've become one of them. An old salt.

I came to sailing by pure serendipity in about 1984, in the days before furling headsails, GPS, and self-tailing winches. A film producer asked me to help him sail his new used boat some 100 miles across Georgian Bay in October to a winter yard. Because I'd written a script about a sailing adventure, he assumed I knew how to sail. Because he owned a boat, I assumed he knew how to sail. We were both mistaken. Neither of us knew much beyond the basics. And we had no idea of the perils of sailing on Georgian Bay in October.

The boat, a 31-foot Contest from Denmark, had been laid up for seven years. When the producer, whose name was Bill, and I arrived in Killarney, Ontario, to start our adventure, neither of us had ever seen the boat nor had any idea about its condition. The yard in Killarney had rigged the mast and bent on the sails. A contingent of headsails waited in the V-berth. There was a marine radio that neither of us knew how to use, dilapidated life jackets, expired flares, and a cantankerous Volvo diesel that didn't like the chill in the air on that October day. In retrospect, things could have gone much worse than they did.

Centaur **taking a breather at Lonely Island, the single stop Bill and D.B. made while on their 100-mile passage from Killarney to Meaford, Ontario.**

The batteries were dead, so we hand-cranked the Volvo for half an hour before it sputtered to life. Then we motored, oblivious, out of the harbor and into the vastness of Georgian Bay.

Without any discussion, Bill and I assumed roles. I raised the main and Bill handled the mainsheet. He also took charge of navigation and helming. I worked the foredeck, hanking on sails and trimming the jib sheets. With a brisk 20-knot breeze out of the west and a crisp, clear sunny day before us, we set out for Lonely Island, where we planned to moor that evening before pointing the bow for Meaford the next day. On the chart, I noted that Bill had drawn an impressively straight line from Killarney to Lonely Island, and the compass confirmed we were on the right heading. Both of us found navigating easy and sailing hadn't proved difficult to master either.

D.B. Davies at the helm of *Centaur*, a 31-foot Contest, crossing Georgian Bay on a blustery fall day.

Around noon, the wind eased and shifted to the south. I went below to find a bigger sail. I hauled a bag labeled "Drifter" topsides. After dropping the genoa, I began hanking on Drifter, having already cleated the starboard sheet in the cockpit to keep it from flapping around. With Bill at the helm, I started hauling on the halyard. Yard after yard of sail streamed from the sail bag. When the head of the sail finally reached the top of the mast, the wind picked up. The sail filled and the boat lurched, burying her lee rail. Chop that was now building sent sheets of spray everywhere. Bill clung to the cockpit coaming and I continued my desperate bear hug of the mast.

"Get that thing down!" Bill yelled, and I uncleated the halyard. But the wind had it now, and as soon as the boat started to right herself, it would fill again and toss us back to the precarious heel, and the water would again wash over us in sheets. I crawled hand-over-hand to the bow and began pulling the sail down the forestay. With the boat pitching and jumping in protest, and me straining and clinging to the pulpit, it was slow going. When I finally had Drifter down and back in the bag, I crawled to the cockpit. The gauge said we were doing 6.5 knots under just the main.

As I lay recuperating and contemplating putting up a smaller headsail, I sensed

concern in Bill's eyes. "What's the problem?"

Bill's voice was flat. "The good news is that with this wind we're going faster than I thought we would."

"And..."

"The bad news is we're going in the wrong direction. The boat won't keep on course for Lonely Island."

We both looked at the chart and its straight line to Lonely Island. If we missed Lonely Island, we'd be sailing all night and come morning have no idea where we were. With a determination that belied the terror he was feeling, Bill took pencil, protractor, and compass to the soaking wet chart.

"We maintained our original course for 6 nautical miles, which put us here. Then we got knocked down to our current course for the past 3.5 miles, which puts us here. If we tack and go 7 miles the other way, and keep repeating that pattern, we should still reach Lonely Island some time tonight."

I looked at him. "Do you really believe that?"

He smiled. "I will if you will."

It was a magnificent plan, but once on the opposite tack, we found ourselves still sailing away from our destination. I put up a number three jib and took over the helm. Bill went below to work on the charting. At intervals he'd emerge and have me alter course or tack again. Then he'd disappear below and calculate some more. The afternoon light was fading. The only encouraging thing was the way the boat was handling. With the small jib and full main she was leaping along at 7 knots and riding as smooth as a Mercedes on the Autobahn.

Bill came up from below and worked his way forward. He held onto the forestay and scanned the horizon. The sun was low and in his eyes. He looked back at me on the helm and shrugged. We were lost.

Bill, the navigator for the voyage, hunches over the chart.

After a while he made his way back to the cockpit and took the wheel. He had a new plan. We'd keep sailing until we sank or hit something. Under the circumstances, his approach seemed practical.

Day gave way to dusk, and a full moon rose above the horizon. We'd tacked twice and Bill thought we should be close, even if we couldn't see anything. I went forward and peered across the water, and then for just a moment, when the boat sank into a deep trough, I saw it: a sliver of light between a speck in the water and the southern tip of what we knew was Manitoulin Island. That speck was it: our destination.

"There...there it is dead ahead...Lonely Island!" I shrieked, "Bill, you're a friggin' genius!"

We sailed to within a quarter mile of the island and dropped sail. Even though it was colder now than the morning, the Volvo started after only a few minutes of hand cranking. The chart showed shallow water at the mouth of the small cove on the island. I took bow watch, yelling instructions aft over the howling wind. The keel hit bottom once, bounced, and then we were into the sheltered cove. We motored to the lee of a berm at the western side of the bay and dropped the anchor. It was about 10 p.m. and we could hear the wind howling outside, but it was calm and safe in our little cove. Neither of us had eaten all day, and the steak and beer dinner we made remains one of the most delicious meals I've ever enjoyed.

We went to sleep well before midnight, under brilliant stars and a full moon. But at 5 a.m., I was up at the bow answering nature's call and thinking, "I could walk down that anchor rode, it's like a tightrope." Looking astern, I realized we'd dragged our anchor across the cove and were about 20 feet from shore. I roused Bill and we anxiously cranked the Volvo to life as the boat edged ever closer to the pebbled shore.

Just as the sun peeked over the horizon, we bounced out of the cove and raised the main. With the wind still howling, that was all the sail we needed to maintain 6 knots. Far off in the distance we could make out a vast coastline, but just where Meaford was on that coastline, we weren't sure.

We motorsailed because the engine was helping us to stay on our straight-line course to Meaford, and we hoped it

would charge the batteries so we wouldn't have to hand crank again. Of course, this meant that at the helm, dutifully staring down at the compass, I was engulfed in a cloud of diesel fumes. Within the first hour I lost the steak, beer, and my morning coffee over the rail to the choppy sea. Mid-morning, I hollered below to Bill, "What are all these islands?"

He came up immediately. "There are no islands."

I pointed across the starboard bow. He looked worried and scrambled back below. Then he resurfaced, glancing between a chart and the islands.

"Must be Christian Island, it's not supposed to be there," he stuttered, "we must be too far south."

"There's more than one island, it looks like a chain," I corrected him.

Bill studied some more. "That can't be right. Maybe they're the Strawberry Islands, but they're way to the north, and we're north of them, and we just left Lonely Island."

I held the helm steady and spoke softly. "And that is a chart for Georgian Bay?"

"Of course it's for Georgian Bay!"

We both stared at the islands in silence. Maybe we'd sailed into the Twilight Zone, or the Georgian Bay Triangle. Bill took a deep breath, "Just stay on course and let's see what happens."

Soon the wind shifted to northeast and we cut the engine and raised the jib. The boat sailed beautifully, and the wheel became a magic wand in my hand. She'd gradually creep up toward the wind after cresting a wave, and I'd make a slight correction. She'd respond and then try to go a bit more into the wind at the next wave. I'd correct again. The boat and I were getting along wonderfully. If only we knew where we were.

Bill brought the chart into the cockpit. "Have you noticed something?"

"What's that?"

"We haven't seen one other boat. We're the only ones out here."

I thought about that for a moment, feeling my gloved hands numb on the wheel, my down jacket a weak shield against the stiff, cold wind. "I think their boats are in harbor and they're sitting before a warm fire."

Bill nodded.

At that moment, I looked to starboard and realized the islands had disappeared. What we'd taken for islands were just the heavily forested heights of land between the low-lying pasturelands along the coastline that ran from Meaford to Tobermory. From a distance, the low areas were sunk below the horizon, appearing as water between the hills. There were no islands! We were on course! Then the thundering booms sounded.

"Rain coming?" I asked, looking around.

Still focused on the chart, Bill was jubilant.

"Wait, no...that's the Canadian Forces artillery range!" He looked up and pointed. "It's supposed to be right there, and it is! They're firing artillery shells at us! Isn't that great?" The markers in the water told us we were about 500 yards beyond the range of the guns, theoretically.

By early evening, we were within a mile of our destination. Following the shoreline for an hour, we'd lost our sense of fear and dread. We were close to land, but still we couldn't see the harbor at Meaford. The entire shoreline was nothing but trees and rocks. Then I spotted a thin clear-cut against the background of dark green hills. Through binoculars, Bill saw cars driving.

"That's it. That's got to be the road into Meaford."

We dropped sail and motored closer. Soon, at just the right angle, we could see a few masts sticking up against the trees in the background. Then the lighthouse and the harbor mouth. We'd made it.

Under a softly rising moon, we motored up the narrow channel and into the harbor at Meaford. At Richardson's Marina, the attendant emerged. "Where'd you guys come from?"

"Killarney," Bill answered. "We sailed down here to put her up for the winter."

"Welcome," he said, shaking his head. "Tie her up and come on in. You guys must sure know what you're doing to make a sail like that this late in the season."

It took a long while for Bill and me to stop laughing.

Several times on that first sail I swore that if we ever found Meaford, I'd never leave dry land again. But the bug had bitten. It was the terror and uncertainty of that voyage; those were the hooks that grabbed me and haven't let go. To this day, every time I slip the lines and leave the dock, I am never really sure what's going to happen. Weather changes, equipment fails, and unexpected circumstances arise. These mostly never come to pass, but there is always that tension of possibility that lies just beneath the serene quiet of the wind powering me to whatever adventure awaits.

Many boats, and trips, and ports, and storms, and calms, and sailing friends later, I'm suddenly an old salt, walking down the dock past a kid proudly swabbing his decks. I stop, smile, and quietly say, "You might want to put a figure eight knot in the ends of those jib sheets, just so they don't slip through the blocks in heavy weather."

D.B. Davies enjoying a brisk, sunny day on Georgian Bay.

"The boat and I were getting along wonderfully. If only we knew where we were."

D.B. Davies is a sailor and writer who is a frequent contributor to Good Old Boat. *He sails* Affinity, *his 1974 Grampian 30, around Lake Ontario. After extensively researching the men and sailing schooners of Canada's Maritime provinces, he wrote a dramatic screenplay about the famous* Bluenose *and her skipper, Angus Walters. You can find out more at thebluenosemovie.com.*

Tale of the Tape

Eight-track audio tape makes for perfect telltales.

BY ALLEN PENTICOFF

When I first began sailing my own boats, I tied yarn to the shrouds to use as telltales. This common, quick-and-easy method makes it simple to see the apparent wind direction and provides a clear visual to help keep sails well-trimmed. Then somewhere along the line, after we'd started sailing our MacGregor 26D, I switched to using audio cassette tape, specifically tape from a dead cassette of Simon and Garfunkel's fifth and final studio album, "Bridge Over Troubled Water." The tape flew a bit more true than the yarn, which sometimes had a tendency to stick to itself and was little help when damp.

Some years later I read someplace that 8-track audio tape, being a larger format, made even better telltales than cassette tape. At the same time, a friend offered that he possessed a broken 8-track tape of the album that had served me so well, "Bridge Over Troubled Water." He gladly gave it to me.

The orange cartridge has occupied our toolbox ever since, a near-unlimited supply of the best telltale material I've yet to find. On our MacGregor, I tie about a foot of tape to each shroud with a clove hitch. I remove it each time we prepare to trailer her someplace, because highway speeds are too much for Simon and Garfunkel. Otherwise, each 12-inch length provides days of enlightened sailing. On our American 14-6, I use the same telltale material, but I attach the tape to alligator clips for quick set-up and removal.

The case may be well-worn, but the 8-track tape inside is the source of terrific telltales. Fastening them to alligator clips makes it easy for Allen to attach or remove them, above.

On both boats, the tape may occasionally slide up or down the shroud and wrap around it, but fixing it is easy and worth the bother, given that these telltales provide excellent reports on wind state, accurately indicating the slightest movement of air. In strong winds, they stand straight out, indicating direction to the degree.

To make the alligator clip version for the American, I simply buy a pack of small clips at the home center, cut the tape to length with scissors, insert the tape through the wire clamp barrel, and bend the tape over it. Then I use a piece of adhesive tape to hold it in place. Alternatively, I could tie the 8-track tape to the clip. Tied directly to the shroud, the tape tends to stretch over time and eventually breaks at the knot.

But there is always more to be had. This single cartridge is enough for a lifetime's worth of sailing, so long as I always remember to tape the bitter end to the outside of the cartridge. I don't know what I'd do if it disappeared inside; my waters would then be troubled indeed.

Allen's wife, Ruth Penticoff, and new sailor Rick Josephson enjoy a chilly sail aboard the Chrysler Mutineer 13 *Ha Ha* with the 8-track telltales flying, below.

Allen's bio can be found on page 12.

Reality Check

Ready to buy a boat and sail away? Try this first.

BY KEN FERRARI

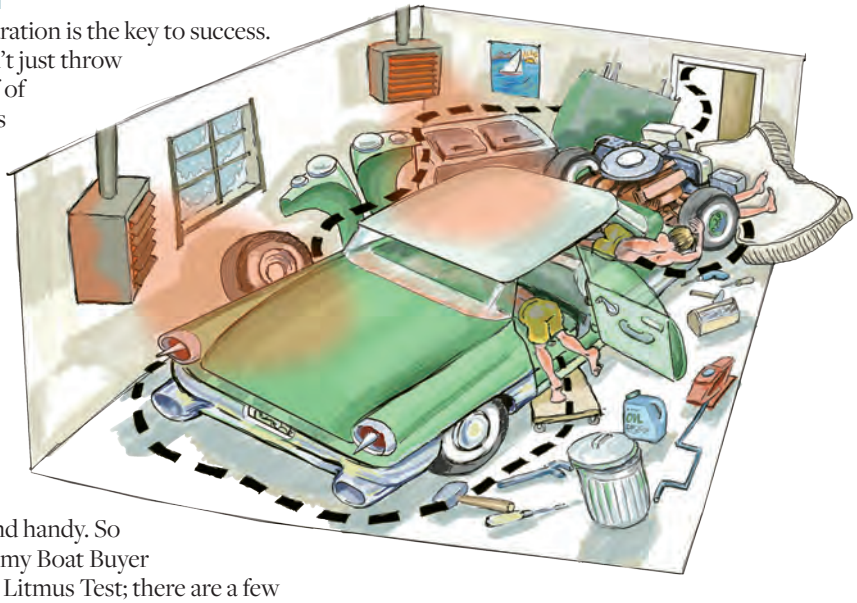
I blame YouTube. I blame those sailing channels filled with bikini-clad sailors living carefree lives in tropical paradises. They so blithely fail to show the realistic, day-to-day maintenance chores that are part and parcel of sailing and sailboat ownership. I can't imagine the shocking reality that awaits the audience of landlubbers who buy boats so they can follow in the naked, sun-kissed footsteps of their YouTube heroes.

Every one of them would be purged of their starry-eyed misperceptions if they could spend just a week aboard one of these YouTube boats to experience the behind-the-scenes reality. Maybe after they unclog the head, clean up the exploded can of tuna in the food locker, service the winch (while dropping a critical part overboard), clean the bottom, and fix the deck leak (after spending two years just finding it) will they be of right mind to decide if they still want to buy a boat and sail away.

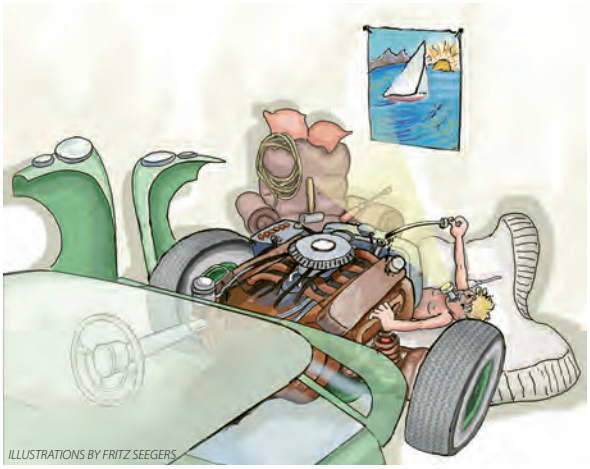
Of course, that's not going to happen, but I have a more realistic litmus test for the prospective sailboat purchaser: Change the oil in your car, at home, but follow my instructions so that you get a sense of what it can be like to do the same chore aboard.

Preparation

Good preparation is the key to success. You wouldn't just throw a whole loaf of scrumptious Spam right into a scalding hot pan, right? You'd first prepare. You'd get a knife and slice the loaf. You'd make sure the spatula was clean and handy. So it goes with my Boat Buyer Oil-Change Litmus Test; there are a few things you'll need to do to prepare.



Step 1: Make room for your car in the garage. No need to clear it out completely, just enough room for the car is fine—in fact, the more cluttered and crowded the garage, the better. Pull the car in until the front bumper is touching the back wall and then turn it off (making sure the engine is warm) and shut the garage door.



ILLUSTRATIONS BY FRITZ SEEGERS

Step 2: If it's not already very hot and humid in your garage, you're going to need to make it so. Maybe bring in some space heaters and humidifiers. When you can't spend 10 minutes in your garage without dripping in sweat and feeling a bad case of heat rash coming on, you're almost ready. Now strip down to your swim trunks or skivvies and bare feet. That's how you're going to change the oil, because you're afloat in a tropical paradise, remember?

Step 3: Drag the bed from the guest bedroom into the garage and jam it against the passenger side wheel well. Slide your chest freezer to the identical location on the driver's side.

Step 4: Move the recliner from your living room to the garage and dump the contents of your toolbox underneath the cushion.

Step 5: Remove the hood from your car and lay it across the top of the recliner (this step simulates the removal of the companionway steps).

Step 6: Now do the reverse of the previous step so you can get to the tools you need underneath the cushion, the cushion you covered with the hood (it's okay to swear loudly at this point). Carry the needed tools across the garage and set them on the clean sheets of the guest bed.

Step 7: Stub your toe on something.

Step 8: Get in your car and crawl from the back seat to the front seat.

The Oil Change

Step 9: Reach forward out the passenger-side window and strain to remove the dipstick from the engine. As you pull it out, note the drops of dirty oil you're hopeless at preventing from flicking all over the guest bed.

Step 10: Crawl out of the car, balance yourself on the front bumper, and insert your longest drinking straw into the dipstick hole.

Step 11: Suck hard. Spit the mouthful of dirty oil into your mother-in-law's heirloom iced tea pitcher. If this doesn't prime the oil-extraction pump, repeat. Drain the oil into an empty gallon milk jug, whose lid you will conveniently forget you failed to install until you later tip the jug—which you left on the front seat of the car—to complete the oil removal.

Step 12: Once the oil is removed, climb onto the guest bed. While lying on your back with a flashlight in your teeth, reach behind the passenger side front tire and remove the wheel well guard. Force your arm through the maze of suspension components and feel around blindly for the oil filter. When you find it, remove your bloody arm, climb off the guest bed, and retrieve the oil filter wrench that you forgot beneath the recliner cushion.

Step 13: Repeat Step 12 with oil filter wrench in hand.

Step 14: Loosen the filter with the wrench. Continue unscrewing the filter with your bare hand until your hand is covered in scalding hot oil. Don't drop the filter. As you try to remove the filter by pulling your arm back through the fender well, drop the filter (it's okay to swear loudly at this point).

Step 15: Being careful not to leave any oily footprints, trudge into your house and retrieve a new oil filter from under the dining room table and a gallon of oil from a kitchen cabinet.

Step 16: Open the new oil and pour some into the new oil filter until it overflows and spills onto the garage floor. Check the oil's lubricity by stepping in the spill.

Step 17: Crawl across guest bed with the full oil filter and again reach around the front tire and through the suspension. Blindly search for where the oil filter is mounted. When found, carefully cross-thread the new oil filter to ensure future leaks.

Step 18: Laying across the windshield, pour the rest of the gallon of new oil into the engine (do not use a funnel). As soon as you realize that a gallon equals four quarts and that your engine takes five quarts, swear loudly before returning to the kitchen for more.

Step 19: Clean up.

I'm confident that having followed the above steps, you—YouTube viewer—are far more informed about the boat owner's life and ready to make that boat-buying decision with a clear head. At the very least, you're ready to shut off that computer and go sailing.

Ken Ferrari and his wife, Vicky, are full-time cruisers living aboard their 1981 Morgan 382, HuskaBean. *In addition to a stem-to-stern refit of their boat, they have logged over 20,000 nautical miles while cruising the U.S. East Coast, the Bahamas, and the eastern Caribbean, and have recently completed a west-to-east crossing of the north Atlantic Ocean.*

Ahead of the Game

Replacing a traditional marine head with a composting system is clean and green.

BY JERRY THOMPSON

I love my new-to-me 1999 Beneteau 311, but the boat came with a very pronounced smell in the head, which persisted despite my best efforts to clean and sanitize. The 19-year-old marine sanitation hoses were permeating black water odors. An interesting if flawed design by Beneteau resulted in effluent sitting in 8 feet of sanitation hose that connected the holding tank to the through-hull discharge valve, as there was no shut-off valve at the bottom of the elevated holding tank.

The system provided two options to move the waste, one directly into the holding tank and the other overboard. But the Y-valve configuration meant that to use the overboard option, the entire contents of the holding tank went with it. It would have been handy to have a valve on the holding tank discharge to prevent the tank from emptying but still be able to discharge overboard where that option was available.

The smell and the corresponding problems, including blockages, leaks, and seeping joker valves, meant that the whole system was in need of replumbing. But replumbing wouldn't relieve me of the unpleasant notion that I would often be sailing around with a tank of raw sewage. All of this motivated me to consider alternatives to the conventional marine head/holding tank solution.

Options

I started researching the possibilities: cassette toilets, the Electro Scan system, and composting toilets.

A cassette toilet—the Thetford Porta Potti, for instance— is a Type III marine sanitation device (MSD) that's portable and incorporates a holding tank. Typically, the holding tank section of a cassette head separates from the seat and freshwater reservoir to facilitate disposal into a shoreside toilet. The system requires using strong chemicals in the portable holding tank to break down solids and control odors.

I'd used a cassette toilet in my Seaward 24 and it worked fine. But dumping and washing out the holding tank was never a pleasant task. While the cost of this sanitation solution was low, and the whole system was small and self-contained, I had no desire to revisit the chemical smell and the dumping process aboard my Beneteau.

Next, I considered a Type I MSD, that is, one that includes an on-board treatment system. This solution treats waste downstream from a conventional marine toilet, and that treated waste is deemed safe for legal discharge, eliminating the need for a holding tank. Raritan's Electro Scan is a popular example and the one I considered.

Using the Electro Scan, after each flush the waste (black water) enters the first of two chambers. Here, a macerator turns the waste into a liquid with suspended fine particles. Then electrodes in the chamber send electricity through the liquid. The current reacts with the saltwater to neutralize and disinfect the waste. When the head is next flushed, the treated waste liquid moves into the second compartment

The marine toilet system Jerry inherited with his Beneteau 311 included a holding tank mounted nearly at deck level with hoses in which effluent would inevitably sit and cause odor over time.

Cleared of all parts of the previous system, the head compartment is clean and ready for the installation of the C-Head.

To ensure the optimum placement for the C-Head, Jerry first made and installed a cardboard mock-up.

where the process is repeated. But this time, before it's electrified, the liquid is mixed rather than macerated. The next time the toilet is used, the first batch of twice-treated sewage is discharged overboard from the second compartment. The cycle repeats with every flush, and the system's capacity is huge; over 500 gallons can be treated per day.

As fantastic as the Electro Scan sounds, there are issues to consider. The Electro Scan system requires saltwater for flushing. Brackish or freshwater doesn't permit the necessary conductivity. I could install an optional salt-feed system, but this would increase the complexity and add points of failure. Also, the system cannot be used in a no discharge zone (NDZ), of which there are many; the Environmental Protection Agency maintains a list of all NDZs in the United States. I called the Coast Guard and asked if, when they boarded a boat in an NDZ, they checked for proof that a Type I MSD was not in use; they confirmed they did.

Another issue with this system is its demand for electricity. The 12-volt system's macerator is rated at 20 amps, the electrodes 25 amps, and the mixer 5 amps. Raritan reports consumption of 1.2 amp-hour per flush. The cost is less than I expected, with units starting at around $1,200. But given that I often sail in brackish water and in NDZs, the Electro Scan wouldn't work for me.

Finally, I took a good look at a composting toilet. I learned that the secret of composting toilets is that they are designed to keep liquids and solids separate. The liquid is emptied at regular intervals depending on usage, but much more often than the solids/compost storage area. Solids are mixed with a composting medium such as peat moss, coconut coir (husk), or a material such as aspen bedding used for keeping small animals. All absorb moisture, which is key.

I spent several days reading reviews of composting toilets written by real people, both boaters and recreational vehicle (RV) owners. I didn't come across anyone who regretted trading a holding-tank system for a composting system.

Encouraged, I focused on learning more about the three brands competing in the marine and RV market: Nature's Head, Air Head, and C-Head. All boast excellent reviews, but my overriding consideration was size. The cockpit protrudes about 8 inches into the top back wall of the head compartment aboard my Beneteau, making sitting up straight on a taller head impossible.

A Misnomer—Editors

According to composting expert and author of *The Humanure Handbook*, Joe Jenkins, there is no such thing as a composting toilet. According to information on his website, humanurehandbook.com, "Toilets don't compost, people do. A 'compost toilet' collects organic material for composting elsewhere."

The site goes on to say, "Composting, by definition, has three requirements: 1) human management; 2) aerobic conditions; and 3) the generation of internal biological heat. If these three requirements are not met, composting is not taking place and the end result should not be called compost. Most devices referred to as 'composting toilets' do not produce compost and should be referred to as dry toilets or biological toilets, anything but composting toilets."

Composting takes a lot of time, and aboard a boat the organic, compostable waste is intended to be emptied and discarded before it's actually composted. Of course, this doesn't negate any of the very real benefits; we just want to be precise.

I quickly determined that the Nature's Head and Air Head were too tall, at 21 inches and 19.75 inches, respectively. Only 15 inches tall, the C-Head's Shorty model would fit better.

Installation

To make sure the unit would fit, I created a cardboard mock-up using instructions from the C-Head website. But to test the mock-up, I'd be going all in anyway; the entire system already in my boat would have to go.

To prepare for removing the system, I pumped out the holding tank, ran about 3 gallons of bleach water (5 parts water to 1 part bleach) through the head and into the holding tank, and then pumped out again. Finally, I opened the discharge seacock and pumped fresh water through the system. My careful prep meant no nasty surprises when I removed the marine head, holding tank, and sanitation hoses. As soon as they were out, I could see the first benefit of not having a holding tank—a new large storage area.

Before proceeding, I thoroughly cleaned the compartment. Next, I positioned the C-Head mock-up where the real one would live. Satisfied it would work, I mixed thickened epoxy to fill the holes in the shelf where the old toilet had been mounted. Next, I positioned the new C-Head and sat on it to determine the perfect spot. I marked the locations of the mounting bolts and drilled four 3⁄16-inch pilot holes into the shelf. Then I fixed the C-Head to the shelf using four 1⁄4 x 1-inch galvanized screws with washers, first wrapping the washers in butyl tape. Installation done!

I'd read about ventilation requirements for composting toilets and called the C-Head distributor to ask about this. He told me that in heavy-use installations, such as multiple liveaboards, a 12-volt fan helps prevent condensation that would impede the composting process. This is important because moisture is the enemy and the cause of foul odors. He advised me to first give my composting head a try without any active or passive ventilation; as it turns out, I've not needed ventilation with my system.

Operation

To prepare the head for use I added composting medium to the solids container. I chose aspen bedding because it was available at the local Tractor Supply store. Next, I filled and stowed 2 1⁄2-gallon sealable plastic bags with pre-measured amounts of bedding for future use.

Using the head is simple. Unlike a traditional toilet bowl, the composting head bowl is divided and shaped to move liquids and solids into separate areas. After depositing solids, which fall to that compartment, you simply close the lid, insert a handle into the socket at the top, and turn the handle to stir the deposited solids with the bedding.

Number one requires a little more precision, since the primary goal is to never let liquids and solids mix. This means that men have to sit down to urinate (something women have no issue with, though some men find it awkward). The urine enters a reservoir under the seat, which is nothing more than a gallon milk jug to which I add a 50-50 solution of vinegar and water to control odor.

Although the C-Head can compost toilet paper, I have tried it with and without, and I believe it works better when there's no paper in the mix. It doesn't seem to break down as well as the solids. Rather than depositing toilet paper into the head, I keep sealable plastic bags under the sink for used paper, which then go into the trash. (I know this is a common practice

The business end of the C-Head shows how solids, which land in the bedding material, remain separated from liquids, which go into the gallon jug.

among people who use traditional marine toilets anyway, since paper can easily clog those systems if overused.)

Emptying the solids is easy. I bring a trash bag into the head, remove the solids bucket, place the trash bag over the top and turn the bucket over. I refill with fresh aspen bedding material and I'm done. The whole process takes about five minutes. I can legally place the trash bag of composting waste in a dumpster—far better and more sanitary than the millions of Pampers that are tossed daily.

As for capacity, I generally singlehand, and I haven't come close to capacity using the boat for 20 days. I will empty after around 20 "deposits" just because it is easy to do.

Emptying liquids is a matter of sealing the milk jug and dumping the contents in a shoreside toilet or, if offshore beyond three miles, overboard. For longer trips, I bring extra jugs with lids so I can cap and store them until I can properly dispose of them.

I've had no odor issues with this head. One problem I did have, briefly, was of my own doing: I left the boat for a month and failed to empty the solids container before leaving. When I returned there was no odor, but there were fruit flies (lots of them) in the head. Apparently, they entered via a hole in the handle socket. Now when I leave the boat for an extended period, I empty the solids reservoir and I leave the handle in place to close the socket.

I have been using the C-head composting toilet for over two years, and I am very pleased with it. I still appreciate opening the door to the head and not being assaulted by stinky smells. And, I was able to permanently eliminate two below-the-waterline holes in my boat that served the old marine toilet, one for the saltwater intake for flushing and one for the waste discharge.

What do I miss about my old conventional marine head? Not one thing.

Jerry Thompson lives and sails in eastern North Carolina. He learned to sail more than 25 years ago at the Armed Forces Recreation Center, Lake Chiemsee, Germany. North Carolina's milder winters keep Jerry on the water year-round.

Installed, the C-Head has a clean, simple design with a removable handle for stirring the compostables. With nothing going overboard or into a holding tank, there's no need for hoses or through-hulls.

Thinking Ahead

With three brands on the market, marine composting heads are gaining acceptance.

BY JIM SHELL

Several marine-suited composting toilets have been on the market for many years, and each has earned a devoted following. All are Coast Guard-approved marine sanitation devices (MSDs) that employ organic materials to compost waste. All are self-contained units with no sanitation hoses, through-hull fittings, or holding tanks. All require the owner to handle human waste to some extent. All separate urine from feces and produce no objectionable odors when managed properly.

The three commercially available units are Nature's Head, Air Head, and C-Head.

The Nature's Head and Air Head toilets are probably the most common and are somewhat similar in design and operation. Each is approximately 20 inches high, 19 inches wide, and 19 inches deep—about 4 cubic feet in volume (a standard marine toilet is about 2 cubic feet in volume). The Nature's Head also requires a 2-inch clearance behind the unit for the top to be tipped back to remove the urine tank as well as to unhinge the upper unit from the lower unit.

For both brands, space requirements are often a factor when considering them to replace a conventional marine toilet.

The toilet bowl is designed to direct urine into a jug and feces into a solids tank that contains organic material. Each toilet has a handle on the side that's used to turn a stirring rod in the solids tank to mix fecal material with the composting medium. Both manufacturers call for forced-air ventilation of the solids tank with a 12-volt fan and hose connected to the outside.

These toilets get good reviews, and those who learn to operate them love them, though they are tall and somewhat bulky with levers, cranks, and brackets on the outside below the seat level.

The C-Head is similar but differs in its form. It is about 40 percent smaller,

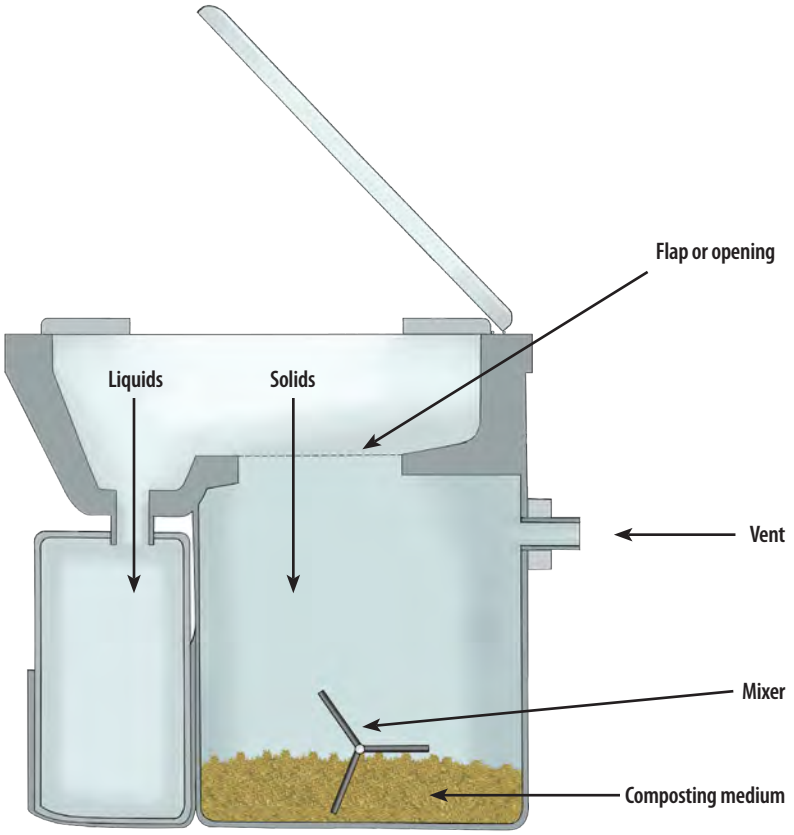


ILLUSTRATION BY FRITZ SEEGERS

and a few different models are available. It's worth noting that C-Head is the only manufacturer that builds models specific to boats. Called the Wedged Back C-Head, it has a cutaway, tapered back to accommodate the curve of the hull against which it may sit. For comparison's sake, the C-Head is about 2.5 cubic feet in volume. Of course, the downside of this smaller unit is that the liquid and solid reservoirs are smaller, thus requiring more frequent emptying—though these models are a little easier to empty than the other two.

Operation is similar to the Nature's Head and Air Head, but forced-air ventilation is only required in heavy usage, and rather than a side-mounted handle for stirring, this one has a socket mounted on top into which you insert a handle when the time comes to stir the pot (so to speak). The result is that the C-Head is a "cleaner" design.

All of these units operate similarly, but they differ in how the solids tanks are emptied. For the Nature's Head and Air Head models, you remove the top of the toilet and set it aside—finding a sanitary way to do this is important—take out the urine receptacle, then detach the base and either carry it elsewhere for disposal or invert it into a garbage bag to dump the contents. For the C-Head, you lift the hinged top—rather than removing it entirely—and remove the collection bucket itself from the base to dump it into a composting area or bag.

For all of these toilets, the medium recommended for the solids tanks is sphagnum peat moss, coconut coir, or sawdust. Peat moss and coconut coir are available inexpensively at garden supply stores and online. The coir comes in compacted brick form that needs to be reconstituted with a little water to create a mulch consistency. You can get sawdust as pine pellet horse stall bedding from supply stores. The pellets must also be reconstituted with a little water to make a very pleasant pine-scented sawdust. Other organic media, such as planer shavings or paper shreds, will also work.

Jim Shell's bio can be found on page 21.

Air Head

Nature's Head

C-Head

Sawdust Toilet

	Air Head	Nature's Head	C-Head	Sawdust Toilet
Estimated Cost	$1,029.00	$925.00	$600.00	$20.00 to $50.00
Dimensions	18.7" wide 19.75" tall 17.5" deep	19" wide* 20" tall 19" deep	11" wide** 15" tall 18" deep	13" wide 15" tall 13" deep
Separation	Yes	Yes	Yes	No
Ventilation	Forced air required	Forced air required	High use only	No
Paper Bowl Liner	Recommended	No	No	No
Urine Tank	2 gal	2 gal	1 gal	No
Cycle To Emptying	20-30 days per couple	20-30 days per couple	7-10 days per couple	3-4 days per couple
Composting Medium Type* **	Peat moss, coconut coir, and other options	Peat moss, coconut coir, and other options	Peat moss, coconut coir, and other options	Peat moss, coconut coir, and other options
Composting Medium Use	2 gallons per cycle	2 gallons per cycle	1 gallon per cycle	3 gallons per cycle
Composting Medium Cost	Estimated $10 per year	Estimated $10 per year	Estimated $20 per year	Estimated $90 per year
Website	Airheadtoilet.com	Natureshead.net	C-head.com	Search "sawdust toilet" onlline

*Different handle options may change the width.

**The C-Head comes in multiple sizes and cut-out-back models for vessels with sloping hull sides. The specifications in this table are for the Shorty model.

***Other options include any small-textured, mulch-type of debris such as wood planer shavings and wood sawdust (never treated lumber), paper shreds, cedar pet bedding, and pine pellet horse bedding.

Dumping It—JS

With the use of composting toilets aboard boats increasing, questions arise about proper disposal of collected human waste. What is legal and right?

From the moment human waste is deposited in a composting toilet, pathogens present in the waste begin to die off. But until the waste is fully composted, some level of pathogens remains. And waste from composting toilets is always dumped before complete composting, which can take many months.

Even in toilets in which the liquid waste is separated, the collected urine cannot be (should not be) legally dumped into no-discharge waters. In no-discharge waters, these containers need to be hauled ashore to be dumped into toilets or other appropriate areas. But let's focus on solid waste, because its disposal is more of a concern for most.

Ideally, organic solid waste collected in these toilets would be deposited into a compost pile where the biological composting process begun in the toilet can continue until completed. Especially for waste created aboard a boat, this is not always realistic. But that doesn't mean all hope is lost.

Human waste solids may be legally disposed of in municipal solid waste landfills so long as they are contained. In the same way that a soiled disposable diaper (folded up tightly on itself and sealed using its own tabs) or dog feces (collected in a tied-up plastic bag) are contained and legally dumped, so too can solid waste mixed with organic bedding from a composting toilet be bagged and dumped. It's interesting to note that if waste in a composting toilet were treated as it often is in a marine holding tank, with formaldehyde and other chemicals, it would not be classified as solid waste suitable for landfill, but rather as hazardous waste.

Back country hikers and campers who capture and pack out their own waste have long set a precedent for contained solid human waste disposal: the waste elimination and gelling bag concept, commonly referred to as a WAG bag. WAG bags (sold under various brand names) are used to collect and store human waste for later disposal.

Once human waste is deposited in a WAG bag, it is mixed with a powder that gels the liquid urine, covers and adds composting enzymes to the solid waste, and deodorizes the contents. The bags may then be disposed of in a waste stream headed for a solid waste landfill. There are no sterilizing or disinfecting agents present in the gelling powder; the overall effect is strictly containment.

Composting toilets operate in a similar manner to the WAG bag. The organic bedding mixed with the solid waste absorbs moisture (promoting retention of the waste as a solid), covers, deodorizes, and introduces composting enzymes. The commonly used organic media are coconut coir, sphagnum peat moss, pine sawdust, and other organic bedding materials.

It's important to note that unlike the commercial composting toilets, the DIY sawdust toilet ("Bucket Brigade," p. 35) is not designed so that liquid and solid waste are separated. Instead, this toilet depends on periodic additions of sawdust for sufficient absorption. When these contents are dumped, they are a slightly moist, semi-solid clump of sawdust mixed with waste. While the gelling powder found in WAG bags cannot be used with commercial composting toilets, it could be added to the DIY sawdust toilet to further enhance containment and the solid nature of the waste. This powder is sodium polyacrylate, and it is sold widely in hardware stores as an additive intended to solidify leftover paint in cans for disposal.

The solid contents of all composting toilets should be bagged before disposal into the solid waste stream.

Bucket Brigade

Buckets, sawdust, and a clever seat make a functional dry marine toilet.

BY JIM SHELL

When our son, John, moved aboard his Baba 30, the marine head was inoperable and unrepairable. He saw this as an opportunity to switch to an odor-free and more environmentally sound marine sanitation solution: the composting toilet. But he took it a step further; after finding the commercially manufactured toilets too large to fit in his boat's head, he went the DIY route.

In his 1995 cult classic *The Humanure Handbook*, Joe Jenkins includes information for building the sawdust toilet he designed over 30 years ago. His design has been used throughout the world, including aboard boats. It differs from the commercial units in that there is no separation of liquids and solids, and it can be built to be smaller.

The sawdust toilet is very simple and has no moving parts. It's simply a bucket lined with a plastic bag and topped with a toilet seat. The bucket is affixed to the boat to meet U.S. Coast Guard marine sanitation device regulations.

To build the toilet, John started with two 5-gallon contractor's buckets and a Luggable Loo snap-on toilet seat; the total cost was about $25. He cut the bottom 6 inches off one bucket and bolted this shortened section to the shelf where the original toilet was mounted. This created a base into which the second bucket—which serves as the collection tank with the toilet seat attached—would fit.

To secure the second bucket to the base, John cut from the discarded scrap of the first bucket a 5-inch-wide piece that included a portion of the rim. He attached this section to the base with rivets. Once seated in the base, the handle of the second bucket snaps into this rim section to hold it securely in place.

To make the toilet look more attractive, I built a seat to replace the purpose-made Luggable Loo seat. I attached a recycled Bemis marine toilet seat to the snap rim of a contractor's bucket lid, adding a plywood shim between the two.

Managing the toilet is easy, and a bit different than the commercial units. After lining the bucket with a plastic bag and adding 3 to 4 inches of bedding material to the bottom, the toilet is ready. After each use, cover the waste with a couple of scoops of additional bedding material. If the bedding material in the bucket ever looks wet or smells, add more sawdust. When the bucket is ¾ full, remove the bag and dispose of the contents in a composting site or dumpster.

Sawdust is the proscribed cover material, but as with the other toilets, wood planer shavings, coconut coir, or sphagnum peat moss will also work. John found that a 40-pound bag of compressed pine pellets (which have to be reconstituted before use) is enough for 8 to 10 toilet-emptying cycles, or about 45 to 60 days of one sailor's full-time use.

For the two years that John lived aboard the Baba full time, he emptied the toilet every six to seven days. That's more often than commercial composting toilets, but the process is so much easier and cheaper, John had no complaints.

Jim Shell's bio appears on page 21.

(top to bottom) The base of the sawdust toilet is a portion of a contractor's bucket bolted onto the shelf that held the old head. The tab on the back—cut from the rim of this same bucket—provides a notch for the bail of the bucket that serves as the collection tank to hook into, making it secure.

Jim improved the design by employing an old marine head toilet seat and attaching it to the outer ring of a bucket lid, with plywood acting as a shim between.

The finished sawdust toilet fits perfectly in the head compartment of the Baba.

Del Viento **threads her way through Little Bull Passage after leaving Lasqueti Island.**

Free Spirit

Off the grid and off most sailors' itineraries, Lasqueti Island is a community unto itself.

BY MICHAEL ROBERTSON

"You should stop here," said our new friend, Kevin, tapping his finger on our route planning chart taped to the main bulkhead in our cabin. "Lasqueti Island is not like the rest of the Gulf Islands."

I leaned in for a better look. This was not part of the plan. We'd already mapped out our Salish Sea sailing trip, winding through Canada's Gulf Islands and bouncing between ports on Vancouver Island and mainland British Columbia. From Ganges we were headed to up the coast to Nanaimo, the second-largest population center on Vancouver Island, then due north across the Strait of Georgia and up the Malaspina Strait on our way to Chatterbox Falls, at the end of the Princess Louisa Inlet, about 40 miles inland from the British Columbia coastline. A visit to Lasqueti would mean a detour up the southwest side of giant Texada Island.

"There's a community there, totally off the grid.," he added. "I've heard they make their own money."

Their own money? We learned long ago to give great weight to locals' recommendations. A week later, from Nanaimo, we pointed our bow northwest and headed for False Bay, on the northwestern end of Lasqueti Island.

According to the *Waggoner Guide*, Lasqueti Island is, "often overlooked by pleasure craft." This isn't surprising. The island is away from the route usually taken by northbound boats on the way to Jervis Inlet or Desolation Sound. The resorts, farmer's markets, and artist communities that appear regularly in the top 10 lists of glossy travel magazines are a world away in the Southern Gulf Islands. The big ferries don't call here.

We rounded Prowse Point into False Bay late in the afternoon. To starboard, a pier extended from the shore in front of the blue-roofed Hotel Lasqueti. We motored about, looking for a spot to drop the hook that wouldn't impede ferry or seaplane traffic in and out of the small bay. In the end, we followed the lead of half-dozen boats anchored around the corner in Mud Bay, in about 35 feet. Here, the holding and the protection from southeasterlies is excellent.

The morning broke clear, warm, and sunny and we hopped in the dink. We found a small dock on the north side of the pier and tied up.

In terms of a population center on Lasqueti, False Bay is it. It's where the 60-passenger, walk-on ferry berths. The post office, school, a tiny grocery store, and the hotel are all here. This is where the 400-plus residents of this Manhattan-sized island gather for their farmer's market and community events.

It wasn't always so.

The island was home to the Pentlatch people when it was visited by Spanish sailing ships in 1791 (Juan Maria Lasqueti was a prominent officer on one of these ships). By the time sheep farmers arrived on Lasqueti in 1860, only a few Pentlatch survived, a First Nations people destroyed by smallpox and northern tribes.

Subsequent settlements on Lasqueti were centered around Tucker Bay, on the northeast side of the island, facing the Sabine Channel. Steamships landed here, and the post office, school, and store were all within a short walk. But in 1916, a salmon cannery opened in False Bay, and the population and infrastructure followed and remained.

During the first half of the 20th century, Lasqueti was home to loggers who nearly stripped the island of its red cedar trees and ranchers who tried to make a go of large beef cattle operations. But in the 1960s, commercial ventures having been exhausted, Lasqueti was discovered by a new group of people.

"It offered wild coastlines, abundant harvests of salmon and shellfish, and beautiful forests. The climate was benign, the soil rich, and the population sparse. With no intervention from government or police, it was a hippie's dream," wrote Charlie Walters in his book, *Island Dreams*. And it was more than a dream. They came, they staked their claims, and they formed what is today the predominant culture of Lasqueti.

At the top of the pier, we walked up the steep road, continuing past the Hotel Lasqueti, the largest establishment on the island, its restaurant/pub balcony perched over the shore and crowded with tables and umbrellas. A sign outside advertised public showers, but my daughters ran ahead to La Cookie Shack, a self-serve stand along the road displaying more than a dozen different kinds of cookies, muffins, and quick breads for sale. We each picked a treat and put our loonies in the cash box.

The honor system at work at La Cookie Shack, at right.

From the pier at False Bay, the Hotel Lasqueti and the island's population center is just a short walk, below.

For a kilometer, the dirt and gravel road wound up and down through forest, past a few homes and occasional displays of public art. Outside the wood-framed post office, we stopped to read the handwritten notices tacked to the outside, nearly all of them from residents offering services to other residents. Some were specialized, others simply offered any form of unskilled labor.

In an April 2012 episode of Global News 16x9, Lasqueti islander Gerry Chicalo estimated that fewer than 40 percent of new residents are successful. "People come, get all excited, maybe even buy land. A couple years later, it's just all too much, they don't have the skills, and they leave."

Though BC Hydro has made several offers over the years to connect the island to its power grid, Lasqueti residents have repeatedly turned down the offer, preferring to live independently and relying instead on solar, wind, micro-hydro, and gas or diesel generators. Today, Lasqueti remains the only large, inhabited Gulf Island that is off the grid.

Inside the post office, Dee Dee stood behind the small counter, next to the wood stove used to heat the space in the winter. Light came from skylights overhead. Residents' mail was bundled and sorted alphabetically into wall boxes behind her.

A young woman with a backpack pulled up on a 50cc dirt bike, excited to collect the parcel of books she'd reserved from the BC library system. She told us that she and her husband and two

Dee Dee smiles from her command post where islanders come for their mail, at left.

The wharf at False Bay is the first place most people see when they visit Lasqueti, below.

Michael's daughters, Eleanor (left) and Frances (right), provide the perfect frame for one of the many random displays of art found throughout the island, at right.

Random island art also comes in the form of vehicles, at bottom right.

young children moved to Lasqueti a year earlier, that they committed to the life after just a single visit on the ferry. She could have been a spokesperson for the back-to-the-land movement, her eyes bright as she praised the simplicity of the lives they'd built here. She turned before leaving, "Have you been to the Free Store? It's just a bit further down the road, past the school and the firehouse."

The Free Store was a small house with a wraparound covered porch filled with used clothing, books, movies, games, kitchenware, and odds and ends. Residents drop off what they no longer need, and volunteers organize everything. My youngest daughter, Frances, clutched a children's book she found by Maria Coffey, a Lasqueti Island resident.

Back at the head of the pier, we stopped in at Mary Jane's, a combination deli/grocery store, for lunch. The soups are made from island-grown ingredients and the fresh bread is made in-store.

But a visit to Lasqueti isn't about the food or shopping and services. It's about the special kind of peace and tranquility that can be found in a place where people celebrate simplicity, embracing the hardship and independence they know is required for self-sufficiency. Away from False Bay, Lasqueti is about the ease with which you can find solitude. It's about how much more numerous the night stars appear when away from city lights. It's about the dozen natural bays available to kayakers and beachcombers and photographers.

We walked miles of roads, gazing dreamily at owner-built cabins, some quite elaborate and comfortable looking. As sailors, the quirks of self-sufficiency, like solar panels and cisterns, were familiar to us. Absent chain link and other institutional characteristics, the public school on Lasqueti looked warm and inviting, the kind of place we'd like to send our girls if we weren't

Del Viento anchored in False Bay, at right.

Mary Jane's Café, one of the eateries on the island, is as comfy as someone's kitchen, at bottom right.

transients. We saw a few cars on Lasqueti, but bicycles seemed to be the common form of transport. Art displays were around every corner.

Both Lasqueti's north- and south-facing shorelines are dotted with small anchorages. On the south shore, Richardson Cove is adjacent to the 200-hectare Lasqueti Island Ecological Reserve, established in 1971. The reserve protects a shoreline forest of one of the largest populations of seaside junipers in British Columbia, and at least 15 plants considered rare in the province occur here.

North shore anchorages are more protected, abutting a small archipelago just off the coast and in the narrow Sabine Channel that separates Lasqueti and Texana islands. This archipelago includes

small Jedediah Island, an unpopulated marine park and a destination to include with any visit to Lasqueti. Jedediah is rugged and crisscrossed with trails accessible from the island's anchorages.

As we left Lasqueti behind, threading our way through the narrows of Little Bull Passage, I thought back on our visit, realizing I never heard or saw any reference to a unique Lasqueti currency. "Do you think he was pulling our leg about the money?" I asked my wife, Windy. But I later looked it up on the island community's own website. Along with a list of eclectic artists and artisans providing goods and services in the community, there it was: Lasqueti Mint. Apparently, "the mint was conceived when a goldsmith and a numismatist became excited over the potential for a 19th-century drop-hammer coin mint." The pair enlisted a Lasqueti artist, and in 1997, "locals reached into their drawers and pulled out saved bullion to convert into Lasqueti commemorative coins." There have been several mintings since, the most recent in 2008. The dream is still alive that these Lasqueti coins will someday circulate widely, throughout the islands.

"Kevin was right," I said to Windy, "Lasqueti Island is different, I'm glad we made the detour."

Before he was editor of Good Old Boat *magazine, Michael Robertson and his family lived aboard and sailed around on their 1978 Fuji 40. For over a year they explored the Pacific Northwest, from Washington's Puget Sound to Alaska's Glacier Bay.*

ILLUSTRATION BY FRITZ SEEGERS

RIDDLES IN THE DARK

A night passage in familiar waters nearly ends in disaster.

BY MICHAEL ROBERTSON

I'm not a great sailor, not even a very good one. But I enjoy moving from one place to another in that way, and I've long thought my seamanship knowledge and judgment are sufficient to get me, my crew, and boat wherever we're going safely. Then I almost lost my boat and my family in a chain of events that spanned about five minutes.

After almost a week in Astoria, Oregon, visiting family and friends and waiting out storms before heading south, it was time to go. We planned to sail direct to Eureka, California, a 350-nautical mile coastal passage through The Graveyard of the Pacific that would require we cross two notorious bars: the Columbia River Bar departing Astoria and the Humboldt Bay Bar arriving at Eureka. In each case, timing the tides was critical. As our trip would cover three nights and two days, we paid attention also to wind and sea-state forecasts for the stretch.

All day Thursday, we readied for an evening departure. As evening came, my wife, Windy, in charge of all navigation, routing, and general planning, took another look at everything and determined it might be better to hold off until morning. Leaving as planned, we risked arriving at Humboldt too late for the tide to allow us to cross the bar if our speed was even a bit less than projected. And arriving too late could mean having to wait outside for several hours.

"But if we make good speed, we can still leave tonight and make Humboldt on time?" I asked.

"Yes," she hesitated, "if everything goes perfectly."

I don't like change. I bristled at the prospect of

plan upheaval. We'd sent emails to everyone announcing our imminent departure. We'd just finished refueling and successfully arranged with the fuel dock to remain tied there for a few more hours until departure time.

"I say we go."

And we did.

And you think you know where this is going, right? You think this is a story of calamity that stemmed from my impatient urging that we leave, despite my wife's reasoned counsel.

Nope.

At 7:30 p.m., we left the fuel dock and motored out of the marina at the base of the Astoria-Megler Bridge. We had nearly two hours of narrow shipping channels to navigate through protected waters before we reached the bar and were free and clear in the dark Pacific Ocean. Windy went below to help our girls clean up after dinner and to secure things that needed to be stowed for the passage. I guided our 40-foot sloop from the cockpit.

"Call me if you need anything."

"Yep."

This would be our fourth transit of this channel and across the Columbia River Bar. Even in the dark, this is pretty boring stuff. I had all the channel-marking buoys, the channel, and our boat displayed as a blue dot on the screen of the iPad clamped to the bimini frame beside me. Most of the channel traffic was reflected on the tiny AIS screen of our remote VHF microphone on the binnacle. And the conditions were perfectly clear; I could see everything around me for miles, a sea of shoreside lights in the background and the lights of other vessel traffic and flashing channel markers all around. I was bundled up against the cold night on the water and our speed was about 5.5 knots under power.

For 45 minutes, I did little else besides make adjustments to the autopilot to keep us on our side of the 600-foot-wide channel. There was a cross current, and we repeatedly drifted off course. Going straight required we crab a bit. A couple of small fishing boats passed in the opposite direction, but there otherwise seemed to be little traffic. I looked for anticipated marker buoys ahead and I looked for unanticipated traffic from behind. I listened to big ships on the radio 15 miles out, each of them coordinating their bar pilot rendezvous.

The running lights of the next opposing traffic were about a half-mile away. I thought it might be a large fishing boat. There was no question in my mind we would pass port-to-port, as we should. "Red-to-red," is how I've heard some of the commercial captains on the radio say it.

Recall I said that I almost lost my boat and my family in a chain of events that spanned about five minutes. At this point in the story we haven't yet crossed the fear-inspiring Columbia River Bar, we haven't entered The Graveyard of the Pacific, we haven't even sailed night and day and night and day and night along a North Pacific coastline where gales this time of year are a dime a dozen and come out of nowhere, quickly—nor have we made it across the next bar and into Humboldt Bay. But none of those potential, perceived hazards are relevant; we can go ahead and start that five-minute clock right now, while things are as straightforward and boring as they can be.

There is about a half-mile between me and the oncoming vessel in this narrow shipping channel. Given our roughly 15-knot closure speed, we'll pass each other in about two minutes.

It's a very dark night. My depth perception is off and I'm trying to make out a shape. I make a million subliminal mental calculations as I watch this traffic, continuously trying to make sense of the lights all over the boat, of the lights on the hills and shoreline beyond it. But my interest is pretty subdued; I know it will all be clear as we get closer.

Then I realize we are a bit closer, closer than I assumed, less than a quarter mile now and getting brighter, but still not a concern. We'll pass by, two proverbial ships in the night. I wonder if they see me—my little LED running lights so low on the water—but there's no need to call on the radio to verify, we're going to pass port-to-port, sure as rain. I remember that we don't have a steaming light on this boat, there never has been, and installing one had been on my list for a long time, but a low priority.

> "I hear new noises, growing sounds of rushing water, and a flush of panic wells."

Then a larger boat grabs my attention, off in the distance, just a smudge in the darkness about a mile beyond this approaching boat, way outside the channel on the other side, heading the same direction as me and merging into the channel. It's like a large white hull, and the first strange thought that occurs to me is that it's an unlit cruise ship heading out to sea, strange indeed.

My approaching traffic is closer, right where he should be. I can see now it looks like a large tug.

But I'm focused on the new guy, wondering about this big, white, unlit cruise ship—though not concerned, he's still way in the distance and he'll surely merge into this channel way ahead of me. This is probably the closest I'll get to him.

Suddenly my perception of everything changes.

Lights jump out from behind the big, white, unlit cruise ship and they're close, and I realize this cruise ship is not a cruise ship, but a white wall that's growing fast. I can't make sense of what I'm seeing, but it's all growing quickly, eclipsing the lights in the background.

"WINDY!"

I fumble with the remote VHF mic to see the AIS info on the tiny 1.5-inch display to help me interpret what I'm seeing. The AIS range is set at five miles and I can't discern anything but a cluster of traffic and I drop it, I have no time, I've got to keep my eyes forward. I hear new noises, growing sounds of rushing water and rumbling. I usually hear little over the sound of our own engine, and a flush of panic wells.

"What is it?" Windy climbs quickly out of the companionway from the brightly lit interior. She knows something is wrong by the way I called her.

"HELP ME WHAT AM I LOOKING AT?"

The approaching tug is now close abeam, passing quickly by. I take a second to look at the iPad to confirm we are where I think we are, headed the right direction. Then I turn back. The white wall is towering ahead, and I see a bow wake, but it doesn't look right. The lights beyond it are disappearing, but they had been moving alarmingly to our starboard side.

Windy turned to face forward. "Uh, ohmygod, uh, um..."

I know we are in danger and very close to something bearing down on us, but I still can't orient what I'm seeing. *Why isn't someone blowing a large warning horn? Wouldn't that happen before we're run*

The Takeaway—MR

There is nothing I did right in this scenario. Luck is what saved us. In short, I trusted my senses even when I knew the darkness was disorienting, comfortable with assumptions I made and failing to use the tools I had at hand to verify my perceptions and broadcast my position. Specifically:

- I should have referred to AIS signals long before I tried to. I would have set the resolution for a quarter mile and would have seen that the second tow, hidden behind the barge, was in our traffic lane.
- I should have been using the radar too, from the start. Even though the air was clear, and I could see for many miles, this hazard would have been clear long beforehand.
- I shouldn't necessarily have been in the shipping channel. Though we sought to be in the channel for crossing the bar, the added depth was not important at this stage, more than an hour from that time.
- I should have assumed I was invisible from the start and been broadcasting our position at each marker buoy all along.
- We should have had everything secured below before we untied. It seemed reasonable that we had almost a couple of hours before we both had to be topsides for the bar crossing, but we discounted the value of having both of us in the cockpit while we moved through this traffic corridor.
- I never learned whether the tug captain saw us, but our lack of steaming light didn't make it any easier to be seen, and not having a steaming light is both illegal and unwise.
- I should have recognized the pattern of navigation lights displayed by a tow boat with a barge behind.
- Because I was already thinking about the more obvious difficult parts of this passage, I was too cavalier about my ability to avoid the potential hazards at the start of it. A different attitude would have gone a long way.
- I should have considered that the same current that was affecting my boat would affect other vessels; in this case, the current caused slack in the tow line and allowed the barge to crab into my lane.

down? What direction is this thing moving? In the same moment, I spin our wheel to port, perpendicular and towards the transom of the passing tug. It seems safe to get into his wake, close to an object I can discern and know the direction it's headed, at least until I get oriented.

At the same moment, Windy points to starboard, her mouth open, silent.

Then I see a line or cable, the diameter of a small tree trunk, lift out of the water from behind the passing tug.

> "Lights jump out from the big, unlit cruise ship, and I realize this is not a cruise ship, but a wall that's growing fast."

And it keeps lifting, growing closer to us. Then everything comes into focus; it all makes sense. The tug passing us to port has a large, white-walled barge under tow, but the tow isn't trailing behind, it's crabbing far into the opposing traffic lane of this narrow channel. It is dead ahead, less than 150 feet away from us.

Windy says, "No, starboard!" as I spin the wheel back, hard over to starboard and shove the throttle all the way forward.

Two or three or five seconds pass before I realize we are clear.

It races by us, right next to us, a big, unlit metal wall. It seems I could reach out and touch it.

Behind the barge another large, brightly lit tug appears, pushing from the rear.

In this context, all of the elements present—the sound, the barge, the wake, the lights—the scene of what nearly happened plays in my head with sharp, sickening, and tactile imagery. I imagine the popping and cracking as all 24,000 pounds of our boat is caught beam-on, pushed sideways, a wall of water pushing over our side as we roll, break-up, and sink underneath the hard, flat end of the barge.

Windy and I stare at each other wordless, breathing hard.

For the next hour we stood together, using the radar, AIS, and each other to gauge traffic in the channel. We used the VHF to announce our position and received appreciative responses from captains who had us on their radar but couldn't otherwise see us. Both of us were buzzing and shaking from adrenaline and eager to get out to the open ocean. We were ten miles out before we began to relax.

And all the while we talked about and learned from the mistakes I made. We felt grateful for the chance to be able to go over each part of it and feel humbled. Something kept surfacing in my conscious, a saying popular among pilots that my dad shared with me when I was young. I knew the saying could be adapted to the sailing community, and that's what my brain had already done and was now putting it into heavy rotation in the jukebox of my mind, something like this: *Sailing is not inherently dangerous but is terribly unforgiving of any carelessness, incapacity, or neglect.*

Ain't that the truth. Only we'd been forgiven, and I knew I couldn't bet on being forgiven again.

Michael Robertson's bio appears on page 41.

We Want to Hear From You—Editors

We've all been there. We've all experienced how sailing, an activity often associated with the serene and sublime, can be the precise opposite. Care to share your story? Tell us about an experience you've had aboard that taught lessons, a disaster or near-disaster that stemmed from a cascade of errors or missteps. Write about the event that made you a better sailor, the kind of stuff that urged you along on your path to becoming an old salt, something we can all learn from and relate to. Contact michael_r@goodoldboat.com.

Change of Pace

A new mainsail puts a spring in a good old boat's step.

BY JON KELLER

I slept with my sail in my bunk for a month before I finally set it. That hadn't been the plan. The plan had been to meet Travis Mack, of Mack Sails, at his shop in Stuart, Florida, grab my much-needed mainsail, rig it, and cross the Gulf Stream to the Bahamas. Done.

Of course, things rarely pan out as planned. Especially when those plans pertain to boats and oceans. And me.

Progress south had been slow, and I spent Christmas Eve and Christmas Day solo and under motor, watching pods of dolphins dance and circle the boat. By the time I reached Manatee Pocket in Stuart, the wind had clocked and was blowing 25 knots from the south. I called Travis, and he offered to grab the sail and meet me on the community dock. I struggled to paddle the inflatable canoe I used for a dinghy into gusty winds, but I made it to the dock, and Travis showed up a few minutes later. He carried my sail and battens down the walkway, a grin on his face. I was wet and a bit worn from the paddle and frazzled after what was becoming a long push to reach this moment: Not only was this my first new sail, it was testament to my renewed commitment to a boat that I'd seriously considered selling.

The search for a sail had begun in Martha's Vineyard three months earlier, when my brother, a J-boat racer, began referring to my main as a "worn-out bed sheet." He'd razzed me about getting a new one. Sure, my sail was old, but I wasn't a racer and a new mainsail would cost more than I could remember spending on a vehicle. I'd rather go slow than pay to go fast. And, I knew I'd have to replace my old roller-reefing boom before I even thought about a new mainsail. Over 40 years old, it had corroded far past the point of rolling, weighed a short ton, and had worn hardware that didn't belong on a boom that didn't roll. I didn't want to fit a sail to it in case the next boom would require a different fit.

Then fate stepped in. Only hours after leaving my brother in Onset, Massachusetts, a 25-knot gust tore the mainsail along the luff. I dropped the sail, continued under headsail alone, and made it to East Greenwich, Rhode Island, a day

Clear of Current Cut and in the lee of Eleuthera with her new mainsail flying full, *Jade*, a Tartan 34C, is a livelier boat. The new main is slightly larger than the old one, with a fuller roach, and while weather helm is a concern with the Tartan 34C, Jon can mitigate it between reefing and using the centerboard, opposite page.

Replacing the old roller-furling boom was the first step in getting a new mainsail, at right.

later. The local Doyle shop patched it up, and when I asked the sailmaker whether a new one was a good idea, he unfolded mine, shook his head, and said, "This thing's 20 to 25 years old. At least."

Then came Long Island Sound and a full, unpredicted gale. Sustained winds were just under 40, gusts just over, and while the patch on my main held with two reefs in, I was in constant fear that the sail would shred. I didn't have the engine power to motor against the winds, let alone the steep, breaking, counter-current chop. It finally sank in that a shredded main could become a real safety hazard. I repeatedly swore that I'd spend the money on a new sail as soon as I safely hit dry land.

But, as with most storm-hastened oaths, it didn't happen. I quickly became overwhelmed with choices and well-meaning, if conflicting, advice. "You need a North," some said. "No, you need a Doyle," others said. "Go to a small sailmaker." Or, "Order one online from Asia, they're cheap and good." I decided to just point *Jade* south and let time do its work.

Weeks later I arrived at Bacon Sails in Annapolis where, rather miraculously, I spotted a boom that looked like it would be a perfect replacement for my old roller-furling boom. With zero luck I had searched the internet and called around looking for a boom and gooseneck, but here it was. On the mainsail side, though, not as lucky. When the shop manager told me that the sail we were inspecting would be fine as long as the winds didn't top 20 knots, I couldn't help but laugh. That sail was in better shape than mine. I had to get serious about a new sail, something that wouldn't rip when the winds did.

I installed the new boom and gooseneck with little trouble (my Makita impact driver worked wonders for freeing corroded stainless steel screws) and pointed the bow south again.

All along, I had been talking with a half dozen sailmakers from Maine to Florida before my old circumnavigator friend and

mentor, Paul, reminded me of Mack Sails in Stuart. Paul had bought his sails for a circumnavigation from Travis Mack's father, so Mack Sails felt like a good fit, and I'd been hearing about this family business from cruisers for years.

When I finally got Travis on the phone, he talked about my boat, my sailing, and sail longevity—how some sails shredded, some bagged-out, some just became a safety issue for sailors in rougher weather. He didn't drop names of fabrics I'd never heard of or lose me in racing lingo and salesman-speak; he was brief and to the point, and I trusted him immediately. His price was competitive, and since I was underway, he said he'd start the sail as soon as I got him the measurements and a deposit.

On the community pier in Stuart, Travis handed the sail to me, then the battens, which barely fit in my small inflatable canoe.

"Pretty funny boat," I said, laughing at my inflatable canoe.

He rubbed his cheek and shrugged. "Looks like it works."

With that, we shook hands, and I was on my way. With too much to do to prep for a Gulf Stream crossing and the wind blowing too hard, I didn't install the new sail for its debut en route to the Bahamas. Instead, I stuffed it into my bunk in the V-berth, where my knees or hips touched it each time I rolled over at night. It was comforting just knowing it was there.

The 11-foot replacement boom was an awkward load in the SOAR inflatable canoe that Jon uses as a dinghy. He had to remove the stern seat and straddle the boom to paddle to where *Jade* waited at anchor in Back Creek in Annapolis, Maryland.

It wasn't until a calm day in February that I finally pulled the sail from the V-berth, struck my old bed sheet from the mast, and slid the new sail on. As I guided the new battens into their pockets, I was amazed at the sail's toughness, the difference between it and what I'd become accustomed to.

Tapping the holes to install the reef lines for the new sail and boom while at anchor in the Abacos. Sale-price Dyneema made light, easy-to-handle reef lines.

Before I could use it, though, I had to determine how to modify my new-to-me boom for the sail. It was fitted for only a single reef, and the lone block was in the wrong spot for my new sail. After removing it, I marked where each block would need to be for the new sail's three reef points; I chose the tried-and-true, all-external-line reef system, which was the simplest and provided the best sail shape, even if I did have to go to the mast to reef. A cruising friend who also happened to be a machinist gave me a lesson on drilling and tapping holes, and soon the boom had three new cheek blocks mounted aft and cleats forward. I was finally ready to sail.

The opportunity came a few days later, and immediately I knew my brother had been right; my old sail had been close to worthless. Suddenly, *Jade* came to life. Not only was my fear of a shredded mainsail gone, but my boat had become livelier, faster, and much more fun to sail on all points. Double-reefed, I shot down through the Sea of Abaco, then on a day of 20-knot westerlies, the two reefs still in place, I made Royal Harbor north of Eleuthera. The winds persisted, and it would be several more days until I shook the reefs out and saw the sail fly full.

I suppose a boat is like anything else that we invest ourselves in, only magnified. Sometimes it can be difficult to invest yourself, be it time or money or emotion—and a boat takes all three—but once we do take that step and see a positive, functional, and beautiful outcome, it can feel very good. Despite months of hemming and hawing about the new mainsail, and then waiting to use it, as soon as I felt *Jade* moving beneath it with a kind of conspicuous joy, all that time, investment, and effort was worth it.

Jon Keller, a writer, commercial fisherman, and former Montana guide, divides his time between Jade, *his Tartan 34C, and his Down East Maine cabin. His first novel,* Of Sea and Cloud, *was published in 2014.*

With new boom and mainsail, *Jade* became a more fun and safe boat to sail, above.

On the first try with the new mainsail, a breezy day let Jon try out the new reefing system. The full battens and beautiful sail shape vastly improved *Jade*'s performance, at right.

On the Fly

During a running refit, a boat imparts life and sailing lessons.

BY EMILY GREENBERG

It all started on a freezing winter's day in a boatyard at the French Canadian-New York border. The decks of the Pearson Ariel 26 I'd just bought were covered in snow. The sails were frozen; the canvas crunched as I shoved it into the lazarette. I hadn't checked for spongy decks or compromised bulkheads before I bought her. I most certainly hadn't checked for a running engine. I was in love with her lines and I was blissfully ignorant.

I knew she was a fine sailing vessel by nature, and possibly suited to offshore adventures with a few modifications, or so I'd read in a book.

She was a Carl Alberg design built in 1968, and I figured she was more seaworthy than the Bristol 24 I had just sold. She had one upper and two lower shrouds on each side, and each shroud connected to an individual chainplate. The Bristol had only two shrouds on each side and they shared a chainplate. The Pearson was two feet longer but narrower and with longer overhangs.

She went to weather better and was faster than my Bristol, that I knew, because I'd sailed her that previous summer on Lake Champlain. She was in the same boatyard and marina at which I'd showed up a year earlier armed with a dinghy, a bicycle, a hammer, and a mission to fix up a sorry Bristol and teach myself to sail.

But that was then. The Bristol had been great for a lake adventure, and now I had a boat that could really go somewhere, far beyond Lake Champlain.

The name on the Pearson's transom was *Vanupied*, French for barefoot peasant, I learned. I called her *Vanu* and tasked her with taking me down the Champlain Canal, the Hudson River, along the New Jersey coast, through the Delaware and Chesapeake bays, onto the Atlantic Intracoastal Waterway, and across the rivers, sounds, and bays from Georgia to the Florida Keys.

But not yet. I had to wait for the thaw, move her to my mooring in Vermont, fix what was necessary to get her to Florida, and then I could be underway. With more time to assess *Vanu*'s condition, I decided that all I had to do to get her ready for our trip was to install an electric bilge pump, shore-up the backstay

After sailing—and refitting—all the way from Lake Champlain, Emily enjoys a nice day on *Vanu* in West Palm Beach.

to prevent imminent failure, acquire a new-to-me mainsail, find a motor that worked later, (I would have to modify the stern locker to accommodate it), and a few other odds and ends. Completing that work and the voyage afterward would be no small feat for this sailor, so early in her sailing life.

And I wasn't blind to the fact that for *Vanu* to really be seaworthy, there was much, much more to be done. "But I'll deal with that later, in Florida," I told myself. I had a vague plan: get to my mooring in Vermont, take care of the urgent repairs, get to Florida, find work, work on the boat, and go to sea.

You see, I was the planner, I was in charge, I had a lot to show this boat, what she could be. Little did I realize, I was a student of boat life and *Vanu* was about to become my teacher.

In West Palm Beach it was time to replace *Vanu*'s standing rigging, which Emily did with some friends' help.

The thaw came and I eagerly launched her in early May. I'd replaced her ancient two-stroke outboard with a modern outboard, but it wouldn't start. So, I drifted off the dock and raised the main just in time to avoid a collision with a Beneteau. I continued south towards Burlington, Vermont. Along the way, I got the outboard started but had to continuously feed its little fuel tank to keep it humming. Picture a 27-year-old woman holding the tiller with her foot while filling the little tank (again) and dodging traffic.

The motor was also a problem in that it wouldn't fit in the well. When installed, the hatch wouldn't close. Once on my Vermont mooring, I bought a 6-horsepower, long-shaft replacement, and a friend helped me modify the engine locker hatch to fit over it. In what was my first foray into boat carpentry, we cut a giant hole that the cowling poked through and then used thin plywood and fiberglass to build an arched cover over it.

The backstay situation was far worse. "Please don't break, please don't break," I remember saying aloud as I tacked in 25 knots on my way to Vermont. When I finally removed the bolts, they crumbled in my hand. There was no backing plate, and the structure of the wooden knee was questionable. I added a thick aluminum backing plate, stainless steel bolts, and fiberglass tabbing to the knee.

"You saved it," an old salt remarked.

I realized I couldn't wait to replace the mainsail, as mine ripped anew every time I raised sail. On the Pearson Ariel owner's forum, I wrote about my planned trip, asking if there was anyone who had recently replaced their main and had an old one in better shape than mine. I'd pay shipping, of course. Within hours, the organizer of the owner's group had a mainsail in the mail for me. When it arrived, I estimated it had 20 years of life remaining. Mine had about 20 minutes. A friend helped me install second and third reef points.

"I'm not coming back!" I called to my neighbors as I left. I'd have cut the proverbial mooring line, but I'd sold my bridle to a friend to pay my debt to the marina. I sailed only five miles that day, but the next day I continued south, tacking through the torrential rain remnants of what had been a major hurricane, frying the electronic components of my depth sounder.

The transducer for the same instrument had been leaking when I launched. But after a few days on the water, I noticed that the wooden spacer on which it was mounted began to swell, seeming to stop the water intrusion. This was a problem that would come back to haunt me, but for now it didn't matter, I was off.

By the time I reached the mid-Hudson, it was time to make my first repair of the trip. The tiller pilot wouldn't stay connected to the tiller and

"I was a student of boat life and *Vanu* was about to become my teacher."

Emily takes a break in the middle of replacing *Vanu*'s portlights.

had stopped steering. I added wood and epoxy as a backing for the pin socket and I used a sock-and-duct tape at the base as a temporary shim to raise the tiller height by an inch. My fears of having to hand-steer overnight along the New Jersey coast were allayed.

At New York Harbor, *Vanu* and I were spit out through the Verrazzano Narrows and into the Atlantic Ocean. The boat still had no business being at sea, but I took it easy, still very cautious.

Unfortunately, with just a single 30-watt solar panel, I could barely keep my house battery charged when there was no load. So, from Sandy Hook, New Jersey, to Cape May, I used emergency running lights powered by disposable batteries. Fortunately, the overnight passage was magical, with light winds and a swell that my boat pranced across like a pony. I dropped the hook just hours ahead of a gale. Stuck at anchor while the wind blew, imagining what it must be like out there, I began to contemplate the limitations of my boat. It didn't feel good.

On the Chesapeake, I sailed downwind in the cold fronts and upwind in the warm fronts and came to learn that it was time to re-bed my traveler and add new springs to the winch on the mast.

By Oriental, North Carolina, I'd found a cracked swage in my rigging. A rigger told me I was playing Russian roulette. I replaced the damaged stay with a piece of cable from another boat and Sta-Lok terminal fittings.

In Ladies Island, South Carolina, the folks at the canvas shop helped me make a new cushion after they found out I'd been sleeping on the original vinyl cushion from 1968.

In St. Augustine, Florida, another sailor girl let me build a stitch-and-glue dinghy out of a sheet of plywood in her woodshop.

In West Palm Beach, I spent $700 replacing the rest of my standing rigging. With the help of five friends and the rig of an adjacent Ericson 27, we raised and lowered *Vanu*'s mast.

I called my stop-and-fix approach a running refit,

The through-hulls for *Vanu*'s depth sounder and knot meter leaked, so Emily decided to patch them over. She used a handheld GPS to measure speed and managed without the depth sounder.

Working in the cockpit, Emily rocks the respirator.

but some things couldn't be done on the move, like the now-leaking-again transducer for the depth sounder and the seriously corroded bronze seacocks for the non-working head. With each low-pressure system that passed and the more I got to know my boat, the less I trusted her integrity.

I was in Florida now and I needed dry land to think things through. I found a place to live at The Boathouse, owned by a yacht broker and sailing author, and where sailors and writers alike passed through. In between odd jobs such as working on a pirate ship, stocking a chandlery, and doing deliveries, I rode my bike 10 miles under the Florida sun to the yard where I'd hauled *Vanu*.

I made a lot of progress. I ripped out the head and disgusting old holding tank and replaced them with a DIY composting toilet. I replaced all the old wiring. When I removed the corroded seacocks on the through hulls, pieces broke off in my hand.

I removed the leaking rubrail and repaired the delamination I found along the hull-to-deck joint. I replaced *Vanu*'s portlights. In my second stint doing boat carpentry, I modified the bridge deck to make the cockpit better suited for offshore work. I installed bronze cockpit scuppers and tended to the rot in the stern locker as best I could, without recoring the entire thing. I rebuilt and refinished the V-berth, painted the hull, and installed a manual bilge pump.

And much more remained to be done.

It happened that I then headed out on two back-to-back offshore deliveries, one aboard a Parkins 28, the other aboard a Pearson Triton 28. On these trips I started to see what the ocean was really made of. I was at sea in a gale for the first time. I quickly came to appreciate how beam and displacement contribute to seakindliness. When I got back to *Vanu*, I was changed.

Vanu's decks were too narrow. *Vanu* wasn't heavy enough. *Vanu* had limited storage capability, not suited to long-term living aboard. And the more I learned, the more I learned how many more repairs she required to be seaworthy. She needed structural work to reinforce her chainplate attachment points. Her sinking mast screamed for a proper compression post. She required deck repairs and an assortment of safety equipment.

And none of those repairs would make her beamier or heavier. It didn't make sense for me to keep going aboard a boat I'd outgrown.

I painted her cockpit, refinished the galley, and reinforced the knees where the chainplates attach. I painted eyes on her keel and dubbed her *All Knowing Vanu*, for she had taught me what I needed to know to move on, the confidence to breathe new life into an old vessel with my very own hands.

When I splashed, I knew this would be our final journey, six weeks to get from St. Augustine, Florida, to the York River on the Chesapeake Bay. I had a job on a 100-foot-schooner and planned to sell *Vanu* to buy another. When I arrived at the York River, a part of me still yearned to keep going, to keep on sailing *Vanu*, to keep patching her together.

A small part of me.

I sold her sight-unseen to a young sailor and I bought another boat the next day, a 1977 Great Dane 28. She has a full keel, transom-hung rudder, beautiful interior carpentry, and an enclosed head. Her ballast, displacement, and beam are all a big step up from my little Ariel.

Of course, she needed work. So far, I've glassed in all the defunct through hulls, replaced the standing rigging, made half of the new chainplates, and installed a wood-burning stove. An electric motor and the rest of the chainplates are next. But I'm not daunted. I'm moving forward with the lessons *Vanu* willingly shared.

Emily Greenberg is a liveaboard sailor and journalist, currently refitting her Great Dane 28 while simultaneously traveling the East Coast. You can follow along on her blog, dinghydreams.com.

Emily fell for *Vanu* while sailing her on Lake Champlain.

Product Profiles

Filling Fuel Tanks Neatly

Just over a decade ago, filling outboards, mowers, chainsaws, and small tanks got messy when CARB (the California Air Resources Board) mandated low-emissions cans. I've found compliant cans awkward to use, spill-prone, and slow. Until now. The SureCan solution is so simple, I wonder why it took so long. I'm in my second season using it and can say it's the first gas can I've used that is spill-proof. The flow is controlled by a valve located at the bottom outlet, operated by an internal linkage. To dispense fuel, I unscrew the small gasketed spout cap, rotate the spout down into the tank filler, kick a safety latch out of the way with my thumb, and squeeze the dispensing lever. As fuel dispenses from the bottom, there's no need to lift and tilt a can to pour. I can regulate the flow as needed, anywhere from two gallons per minute to a thin dribble, making it easy to fill the smallest chainsaw or tiny integral outboard tank in complete control. Instead of a dual-flow spout glugging slowly along, there is a separate vent located under the lever that opens when you squeeze the lever. This ensures good flow when open and closes and locks when closed. Like all CARB cans, the plastic is low-permeation, but this is the first gas can I've used that is odor-free in the car (probably because I haven't dribbled gas down the side; that said, never leave any gas can in a car on a hot day). The cans are more expensive than alternatives but are a joy to use. SureCans come in different sizes and colors (for gasoline, diesel, and kerosene). I see that Edson sells replacement parts for them too.

For more information, edsonmarine.com/surecan or surecanusa.com

—**Drew Frye, *Good Old Boat* Contributing Editor**

Drying the Air

Moisture is a problem aboard every boat, and there are many approaches to combatting it, from leaving an incandescent bulb burning in the cabin to commercial dehumidifiers to passive moisture-absorbing units. I've found great success with my own version of the moisture-absorbing solution. I buy Dry & Dry indicating silica gel beads online and then fill burlap bags with the beads. They change color as they absorb moisture (that's what the "indicating" means), and after about a month it's time to recharge them. Recharging (or reactivating) the beads is easy. I can either spread them out on a cookie sheet and bake them in the oven for an hour or so at 200°F or stick them in the microwave for 10 minutes on the defrost setting. Besides the low cost of buying the desiccant beads online in bulk, the big advantage of my solution over most similar commercial solutions is the beads' reusability. I make the burlap bags myself, but the beads could also be put into plastic containers with holes cut into the lids. Either way, I really love the difference these make in keeping our MacGregor's cabin dry. One note: While silica gel is nontoxic, the blue beads in particular (they turn pink when they've absorbed moisture) contain cobalt chloride, a known carcinogen. I use the orange beads (they turn dark green), as they are nontoxic. Avoid white beads as they are not indicating.

For more information, dryndry.com

—**Carol Severson, *Good Old Boat* contributor**

Burlap bag of beads (top), Saturated beads on cookie sheet (at left).

We present these profiles as a service, as firsthand accounts from fellow boaters. Neither *Good Old Boat* magazine nor the folks who profiled the products on this page were paid for these profiles. Most products were sent to *Good Old Boat* for review consideration by the manufacturers. We profile only a small percentage of the products that marketers contact us about, choosing only those we're interested in, in the hope you're interested too. A few products we pick up on our own, because we want to share.

Boats for Sale

Vineyard Vixen 29
1974. *Ave Marina* is hull #6 of 30 built 1974-1986. See a full description at Boats We Love: tinyurl.com/yx4ghxgo. Also featured in *Cruising World* and *Practical Sailor*. A sweet double-ender that loves to play in the waves, I have sailed her engineless since 1998. Simple camping-style cabin for 4; gorgeous seakindliness under sail. RI, $12,500.

Tim Murphy
timbeaux3@me.com
401-440-8493

Morgan 25
1967. Go vintage! Well maintained. Fiberglass aft-cockpit sloop, LOA 24′11″ Draft 2′9″ Honda 4-stroke 9.9 OB. Ready to sail w/new bottom paint, professionally cleaned sails (2 sets), RF jib, boom vang, spinnaker, sail covers, new halyards, head, V-berth, galley, sleeps 4+, new custom companionway doors still in box, 1,900lb lead ballast, dual batteries, many upgrades. Charlie Morgan said by phone, "It will sail around the world." Sailed Maine to Miami, so far. Oak Harbor Marina, MD. REDUCED to $4,000.

Michael Thompson
410-551-3043
thomahawk@verizon.net

Allied Seawind MkII Ketch 32
1977. Freshwater boat. Westerbeke 30 diesel 2,900 hrs, AP w/remote, new Mack sails, running rigging new ’14, fridge, cabin furnace. Schaefer RF ’19, FB main ’17, spinnaker w/sock, D/S/W (Datamarine), 4 house, 1 start battery (all 12V), ’16 125amp alt. Deck spotless, beautiful teak below. Meticulously maintained by current owner since ’94. All records. Turnkey cruising ready. Much more! Addl photos avail. MN. $36,200.

Harry Mott
507-261-7473
gemsailingmn@gmail.com

Mirage 27-2
1979. Robert Perry design. Length 27′11″ Beam 9′3″ Draft 4′4″ Sail Area 313 sqft Bal. 2,200lb Displ. 5,200lb 15hp OMC Sail Drive (Gas). 130 + 150 genoas and yellow/black symmetrical spinnaker w/pole. Imron-painted topsides ’96, still exc cond. VC 17m bottom paint. 2 reefs, Unit O Harken furler, Harken main traveler, windward sheeting car, and Harken mainsheet blocks. Placed in several Leech Lake Regattas, winning divisional trophies. Includes tandem-axle trailer, and Ship Shape Products winter cover. $10,000.

Mark DeSchane
mvdeschane@paulbunyan.net
218-732-489

S2 7.9
1994. 25′11″ Great cond, FW, adj draft w/lifting keel + tip-up rudder, tandem trailer. Yanmar 1GM10 diesel w/MaxProp, tiller pilot, B&G instruments, VHF. Harken RF, North Sails. Fixed vang, mast/boom refinished, recent standing/running rigging. Interprotect 2000e epoxy barrier coat + VC17 bottom. Many spares, daysailed and love it w/the diesel. Ashtabula, OH. $20,000.

Robert Bollman
440-812-5616
rbollman3@outlook.com

Atkin Schooner 33
1957. Gaff-rigged. 32′9″x9′8″x4′4″. Restored 2012-17, new African mahogany plywood/glass deck. Bald cypress deck beams, white oak frames, 3” floor timbers, 7x6″ stem, white cedar hood ends, 1⅛″ carvel planking, both garboards and 3 planks above. Set of 5 sails including gollywobbler. Bullet-proof Sabb-2H, 18hp, new rings and cylinder sleeves ’12. 6’ standing headroom, sleeps 3+, July ’18 survey. Sale incl hurricane mooring in Colonel Willis Cove, RI. Wishing $60,000, best offer.

Jim De Reynier
860-305-1582
Jimder40@gmail.com

Menger 23
2004. Catboat customized for cruising. 6.2′ headroom, 22.6x10x2.6, H/C pressurized water, 55gal tank, heater, AP, chartplotter, 2 sails, AM/FM radio, boom tent cover w/windows, encl head/shower/25gal holding tank, Yanmar 2GM20 18hp diesel, sleeps 2/3, nonpressurized alcohol stove fridge/freezer, shore power, solar panel to charge batteries, D/S/W logs, double berths w/removable extension, full-length cockpit cushions. Aquebogue, NY, $32,500. Contact broker.

Andrew Galasso
agalasso@lighthousemarina.com
631-722-3400

Allied Seawind II 32
1976. Bluewater. All gear necessary for extended cruising. Sail-away ready. Recent refit incl custom elec panel, H/W heater w/cockpit + inside shower, Nature’s Head composting toilet, 8 new S/S+glass opening ports, RF w/130 genoa, Raymarine radar/chart plotter, Standard Marine VHS w/AIS, EPIRB, handheld VHS, AP, AC, RIB w/8hp Yamaha OB, 4 solar panels, MPPT solar controller, wind gen, new battery bank w/over 400 amps. Destin, FL. $38,000.

Charles Fries
chicf@comcast.net
770-331-5860

Celebrity 19
1968. Evanson-Built, #655, fiberglass hull/non-cored deck, CB w/slight keel for IB rudder. Mahogany/teak cockpit + rub rail, Sitka spruce spars, fore/aft/side storage compartments w/flotation racks. Decent main w/single reef, jib + genoa, new running rigging. ’19 Sunbrella boom tent w/zippered forward section, lift-out seats for camp cruising; HD trailer w/new tires, fenders, lights, wiring. VT. $3,500. sailboatdata.com/sailboat/celebrity

George Little
grayluders@yahoo.com
802-864-4003

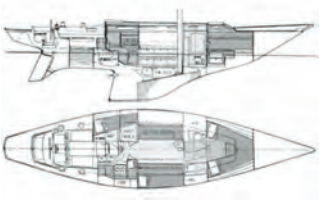
Pearson 26
1971. Sailed out of Warwick, RI for 25yrs. Great sailer, loves her jib! Honda 9.9 4-stroke LS, high-thrust, power-tilt, remote motor control. Foresail RF, teak toe rails, teak sprit anchor roller. Mahogany hatchboards. Dodger, 2-burner Origo alcohol stove, 2 deep cycle batteries. Custom trailer, 7′ hard dingy. Northborough MA. $10,000.

Richard Chouinard
richandveronica@verizon.net
508-393-9559

Pearson 26 Weekender
1976. Great daysailer, exc PHRF racer, heavy-duty gear, spinnaker-rigged, lots of accessories. Incl LS OB, car trailer, steel cradle. Plymouth, MN. $8,000.
Michael Barnes
763-557-2962
granite55446@gmail.com

Downeast 38
1975. Cutter rigged. Rebuilt inside/out '08. New bottom, rigging replaced. Interior exc cond. Recent marine survey (09/'19), new zincs, 3.5KW genset. A/C blows cold, VHF, AP, full instrumentation, GPS. Many pics avail. Ft. Walton Beach, FL. $100,000.
James DeSimone
850-939-7241
jdesim2015@gmail.com

Seafarer 29
1974. *Jabberwocky*. Owned 20 yrs, generally good shape, sails well. Compression post collapsed last summer but is fixable. Strong Yanmar 2QM15 diesel, Quantum main/jib, lightly used, Harken roller on jib. Custom stern step, newer SS lifelines, new halyards, along w/some lines, boat hook, fenders, etc. Hard to move till spring but can be looked at. Can be worked on in current boatyard in Warren, RI. $1,000.
Nathaniel Hesse
505-471-8255
nat15@swcp.com



Camper & Nicholson 43
1970. *Alacrity* is free to anyone willing to take over restoration. Virtually a blank slate ready for new interior/mechanicals. Good-looking boat and she has great bones. No longer able to devote time to her due to family needs. FREE to good home. Pasadena, MD.
John Clarke
410-255-4070
oakharbormd@gmail.com

Lancer 28 MkIV
1980. Sloop for singlehanding, Hoyt jib boom, Garhaeur traveler. All teak clad interior, redesigned as elegant daysailer w/2 settees, quarterberths, custom cabinetry, stone countertops, 6′2″ headroom. 15hp Mariner elec. start OB. FB mainsail w/MackPack cover. WS. Dodger + bimini. Isoteek cockpit surfaces Custom winter cover, and more. Always freshwater. Shelburne, VT. $8,000.
Joe Nieters
joefreda1@comcast.net

Pearson Wanderer 30
1966. Hull #44, Universal 35hp diesel w/226 hr. Mainsail, 150 RF genoa, storm jib, drifter all in good shape. Hull exc cond, top deck needs repainting (never had time to complete). Full keel w/CB. Electric pump for sink + head. GPS, depth gauge, gas stove, stereo. New cushions below. Sleeps 6 (4 comfortably). 3-axle trailer included. Motivated to sell. Norfolk, VA. $7,500.
Bill Sotirion
757-613-0998
bsotirion@icloud.com

Southern Cross 31 Ketch
1980. LOA 31′ Beam 9′5″ Draft 4′7 Displ 13,700lb. Full keel. Diesel, Yanmar 2QM 20. Well equipped. Sound. Comfortable for coastal cruising or bluewater passages. Sleeps 4. Owner has downsized. Details/photos at www.rocknaks.com/. Rockport, ME. $18,500.
Hooper Brooks
914-483-7765 or 207-236-3149
Rocknaks Yacht Sales
hooper.brooks@gmail.com

Bristol 35
1972. CB sloop, handsome classic designed by Alden, Yanmar 3JH3E 3cyl diesel, Beam 10′ Displ 12,500lb Draft 3′9″- 7′4″ Guest ChargePro battery charger, good sails, Harken RF, tri-radial/Pryde asymmetrical spinnaker/pole available. New bottom/freeboard paint '19, top deck needs painting, cockpit cushions, 2 anchors, windlass, athwartships head/shower, sleeps 6, twin fuel filters, hull speed 6.53 knots, shorepower cord, 60amp alternator, huge cockpit, boom tent, new mainsail cover, owned since '02. Equipped, not stripped. St. Johns River. $12,500 OBO.
Bob Griffin
904-338-5812
rkgfla@yahoo.com

Vancouver 25
1984. Sloop, Robert Harris design. Older sails, recently repowered w/Nanni (Kubota block) 2 cyl diesel 14.5hp. This heavy-displ pocket cruiser is comfortable and capable. Includes Ultra Furl RF, Lofrans Royal manual windlass, propane 3 burner stove, Avon inflatable, steel cradle. Call for info. Iroquois, ON. $18,000 CAD, negotiable.
Keith Whittall
514-425-2136
whittall.keith@bell.net

Laurent Giles 38
Bare hull and interior need finishing. Perkins 4-108, Lewmar self-tailing winches, propane stove, windlass. Too much to list! All new. All main bulkheads in, all teak, mahogany, and plywood is there. Drawings/plans. Rudder/fittings. New thru hulls/seacocks. In my boatyard since '84; time caught up w/owners. Incredible opportunity for the right person! I can help w/anything you can't do. Nothing reasonable will be refused. Flag Harbor Yacht Haven, Saint Leonard, MD. $15,000.
John Little
443-975-4795
flagboatyard@gmail.com

Pacific Seacraft Flicka 20
1980. Completing interior work, new cabin sole, hatchboards, tiller. RF genoa, main w/lazy jacks, mast steps, Honda 9.9 just serviced, bottom painted in fall. Several sails including light air. Lovely little pocket cruiser that needs a new home. Incl trailer. Flag Harbor

Yacht Haven, Saint Leonard, MD. $17,000.

John Little
443-975-4795
flagboatyard@gmail.com

Dufour Gib'sea 40
1984. By Gilbert Marine in France, great sailing vessel in need of TLC. 2 good-sized berths/2 heads. Would be a great cruising vessel or liveaboard. Perkins 40hp diesel. RF + main, both good cond. Spinnaker +3 additional sails. Heat + AC. 2-burner stove w/oven, large reefer + icebox. Oak Harbor Marina, Pasadena, MD. $22,000.

Megan Smith
240-490-1985
megankrehsmith@gmail.com

Montgomery 23
1984. Lyle Hess design. Seaworthy rare sloop, 3,600lb, LOA 23′ LWL 21′10″ Beam 8′ Draft 3′. Very good sized/high cabin. Lapstrake hull, w/ dual-axle trailer. 8hp OB recently overhauled. Lots of canvas. Good headroom. Improved over the years. Exc cond. Sleeps 4. Downsizing to smaller boat. Phoenix, AZ. $10,500.

Ayhan Akcar
602-938-0711
aakcar@msn.com

Chrysler 26
1979. Halsey Herreshoff design, swing keel, tiller, self-bailing cockpit, standing headroom. Mercury 110 elec start OB 9.8hp. Origo stove, sink, pump (all new, needs hook-up) Magma stern grill. Marine radio. 2-axle trailer needs work. Stored inside, only two owners. Moving, must sell. Merrifield, MN. $5,000.

Dave Steele
218-820-9282
dsteele@brainerd.net

Marshall 22
1973. Fully equipped catboat! Palmer P-60 inboard, 2 sails, dodger, sailcover, VHF, depthfinder, solar panel/charger, bilge pumps, anchors, dock lines, cushions. Compass prof. refurbished. All new: marine-grade wiring, cabin fans, spars faux wood painted, decks painted w/nonskid, interior memory foam cushions, forward bunk, engine hatch, Balmar alternator '12. New head gasket/rub rails/eyebrow, mainsheet/blocks, centerboard pin, sail w/hull#/cat, rebuilt water pump '14. Interior painted, new battery '19. Consider trade. Cape Cod, MA. $19,000/ OBO.

Brent Putnam
754-701-2456
put8387b@sudomail.com

Tartan 27-2 Classic
1979. S&S, CB cruiser. TS. Classic lines. Many upgrades, S/S portholes + dorades, Awlgrip hull + deck, new canvas/cockpit cushions, FB main w/StackPack, 165 RF genoa. Spinnaker + pole. Teak interior. Repowered w/Farymann diesel from FW boat in '19. Well maintained. Motivated. Westport, CT. $12,000.

Graham Mellen
610-299-7399
graham.mellen@gmail.com

Tartan 37 Classic
1969. Original Ted Hood-designed Tartan, fully restored, upgraded, all new systems, plumbing, electric, FW elec. toilet, etc., incl Westerbeke 35-297 hrs. Full keel, redesigned main cabin, RF, new headsail, roll-up inflatable + lightly used Yamaha 2.5. Great sailing/ cruising vessel. Classic lines, well maintained. You will not have to do anything on this boat. Wickford, RI. $24,900.
More info/photos: breweryacht.com/boat/1969/tartan-yachts/hood-classic/1450/

Gary Deangelis
401-868-7090
gdeangel@holycross.edu

Westerly 22
1968. Good cond. Interior insulated + finished w/wood paneling. Pellet stove for heat. Incl trailer. 3+ sails, fairly good cond. Collapsible Porta-Bote. Head, 2-burn prop. stove, sink, built-in ice chest. Volvo Penta diesel. Non-slip deck good cond. 5′10″ headroom. 6′6″ berths in cabin w/lockers underneath. 6′3″ berth in bow. Sleeps 4. Lake Pend O'reille, ID. $12,000 OBO.

Lori Steiner
509-991-3808
hanknlori@gmail.com

Nonsuch 30C
1981. *Zephyr* in good shape, lightly used, FW only. Equipped w/everything necessary to dock and anchor. Lines mostly recent/ all cockpit led. Many new blocks, electric halyard winch, 2 sails, Doyle, spare. Stack-style sail cover. Stock interior recently varnished, oven, HW, legal head. Auxiliary is '81 Volvo w/saildrive; prof maintained. Currently on the hard under custom winter cover. More pics/equipment list avail. Lake Superior, WI. $29,500.

George Brandt
218-491-4610
brandt548@gmail.com

Products - General

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Mail Buoy, continued from page 7

I smile and say the very best we can achieve is 42 degrees.

—Russ Whitford, *Tumultuous Uproar*, Fakarava, French Polynesia

Dan Spurr, Boat Review Editor, responds:

Thanks for the feedback, Russ. I agree that it's not helpful to offer apparent wind numbers as indicators of performance, as they can be misleading. Our reviewers could, rather simply, do the math based on compass bearings on two tacks, but one wonders how helpful that would be. Reporting close-windedness is a good thing, and I'm comfortable with our reviewers offering their sense of it without doing the math, but I certainly would encourage anyone who is willing to take the time to do the math.

The 45-degree angle is an important and true number, and your modern performance-oriented boat exceeds the number by just 3 degrees. A quick check shows that the very latest performance racers tack through around 70 degrees, but for most good old boats, tacking through 90 degrees is the reality. The ability to sail closer to the wind has not only to do with the hull (modern keels generate more lift, helping these boats point higher), but with the sails in use and how the running rigging is set up. And even then, most good old boats are not set up for the close sheeting needed to pull off 25 degrees apparent.

For years I owned a full-keel Pearson Vanguard. A popular destination was Cuttyhunk Island, maybe 20-25 nautical miles from Newport, Rhode Island, our home port. Returning to Newport on Sunday afternoon, pounding into the southwesterly wind, we had to take a long board to the east to clear fish traps off the south end of Aquidneck Island. After selling the boat and buying a C&C 33 as a test boat for Practical Sailor, *we were able to point higher, just enough that we no longer had to take that tack, sailing direct to Brenton Tower and then into Narragansett Bay, thereby saving maybe an hour sailing time. How much higher, in terms of degrees, was the C&C over the Pearson? Perhaps only 3-5 degrees, but what a difference it made.*

Pacific Seacraft Too

I read with interest about Columbia Yachts' refitting and selling an example of its classic Columbia 50, complete with a new-boat warranty (Websightings, January 2020). The article posed the question: Why haven't other manufacturers done this? I want to point out that Pacific Seacraft has been doing precisely this for many years. Formerly based in California and now located in Washington, North Carolina, Pacific Seacraft is known for its bluewater double-enders designed by William Crealock. Today, the factory not only builds new boats, they offer a Custom Factory Refit Program, under which they update and upgrade virtually every piece of an owner's older Pacific Seacraft. On occasion, the company will acquire older boats, make extensive upgrades to them, and resell them for substantially less than a new example of the same boat. More information is available at pacificseacraft.com

—Damon Gannon, *Fulmar*, 1982 Pacific Seacraft 37, Darien, Georgia

A Tale of Two Waters

Fresh sailing grounds of the Salish Sea offer perspective on Lake Superior.

BY THOMAS MISA

Nothing in four years of summer sailing on Lake Superior has prepared me for this. Adrenaline pulsing, ground speed 8.3 knots, my young son and I hang on as we tack upwind through Cattle Pass. On this December day we can ride tidal currents nearly 50 nautical miles clockwise around San Juan Island and back to our home port on Lopez Island.

Close-hauled against a 20-knot southeast wind, carefully positioned between Goose and Deadman islands, we're pushed by a 2-knot tidal current into the open waters of the Strait of Juan de Fuca. Across the strait, the Olympic Mountains tower, and their snow caps sparkle. Just beyond the pass we are hit by confused 5-foot rollers, the result of recurrent winter gales that have tossed telephone-pole-sized driftwood onto beaches, wreaked havoc on ferries plying the treacherous entrance to Admiralty Inlet, and kept small boats tied up. Our bow plunges, burying the anchor. Rounding buoy 3's mournful gong off Salmon Bank, with squat Cattle Point Lighthouse pivoting starboard, we ease sails downwind to the west. The Pacific Ocean beckons.

Before I moved our boat to the Pacific Northwest, I thought year-round saltwater sailing was easier, less complicated, than summer-only freshwater sailing; now I am not so sure.

Summer sailing on Lake Superior was tactical. I judged the day's winds, hoped for favorable weather, and set a course for a destination. I could usually spot ominous clouds that signaled summer thunderstorms generating 30 or 40 knots of trouble. But where I sailed was largely in my control.

I am learning that sailing on the Salish Sea is more strategic. There are more forces at play, and the key is anticipating them and understanding where they aim to push me. We're in luck today. The last gasp of an ebb tide flushes us south through Cattle Pass, then a flood tide coming in from the Pacific propels us north up the west side of San Juan Island, past Lime Kiln State Park's well-known whale-watching grounds. Later, we ride the end of the flood tide through dramatic Spieden Channel and back into protected waters near Friday Harbor.

The Salish Sea was named by marine biologist Bert Webber two decades ago to help make visible the natural connections of Canada's Georgia Strait, Washington's Puget Sound, and the Strait of Juan de Fuca. Its complex, intertwined ecosystems encompassing 6,900 square miles and stretching 150 miles north to south vitally depend on both countries collaborating to ensure its future. Native peoples who claim the heritage of the Coast Salish encourage cross-border cultural, judicial, and resource-management ties.

It's a magnificent expanse of water, but coming here from Lake Superior has provided me with a unique perspective to counter those Pacific Northwest mariners who assume that an inland body of water surely cannot equal it. Stretching 350 miles east to west, Lake Superior is nearly five times larger in area than the Salish Sea. While a sustained 30-knot blow from prevailing winds in the Sea might generate waves to just over 7 feet, the same conditions applied to Superior's 200-mile fetch can produce waves nearly twice that height. For our *Sunyata*, an S2 9.2, the Salish Sea at its worst is doable, whereas Lake Superior can be threatening.

If wilderness sailing is about confronting the primal forces of nature, it's clear that Lake Superior and the Salish Sea each offer plenty of challenge. All open-water crossings on Lake Superior should occasion careful planning, an eye on the clock, and sharp attention to weather. Any passage beyond the Salish Sea's inner protected waters likewise require caution and care. In each, I find the sailing equal parts therapeutic, cathartic, and just plain fun.

We approach our home port after winter's immense darkness has descended, and we can see almost nothing of the marina's rock breakwater and finger piers that we must slide into. We creep through the darkness until spotting the broadside of a large motorboat; our boat's slip is just to the far side. Home safe, I give a nod of respect for the forces of nature that we collaborated with today on this body of water.

Thomas Misa and his sailing spouse, Ruth Fothergill, moved Sunyata *from Lake Superior to the Salish Sea in summer 2018, and thereafter have sailed each month including February's brisk 38° F. tjmisa.com*

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