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Practical Sailor™

Tartan 37

This quick cruiser is well built and well mannered.

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ALSO IN THIS ISSUE

Sarasota, Fla.'s anchorage was cleared of anchored boats in 2012 to make way for a mooring field under a new pilot program to regulate anchoring in Florida.

New Anchoring Rules on Horizon in Florida

So far, no one at the Florida Fish and Wildlife Conservation Commission has returned my phone calls, so I'm left trying to imagine what might have compelled the commission to release a public survey on anchoring restrictions during the days bracketing Thanksgiving week, with very little (if any) advance notice, as far as I can tell.

The timing and poor notification is curious considering that anchoring restrictions have been an extremely contentious issue in Florida for at least two decades, ever since towns and cities began passing local anchoring ordinances, many in clear conflict with state and federal law. By 2007, several municipalities had established a mishmash of inconsistent anchoring ordinances, some with time limits of less than 48 hours. These rules, regarded as onerous by boating organizations like the Seven Seas Cruising Association and BoatUS, were repeatedly challenged, and in 2009, the Florida Legislature passed legislation that prevented local governments from enacting anchoring ordinances that conflicted with state law.

In 2011, the state launched a taxpayer-funded pilot program designed to promote the use of public, paid mooring fields instead of anchoring in six Florida municipalities—St. Petersburg, Key West, St. Augustine, Sarasota, Marathon, and Stuart. (See my *Inside Practical Sailor* blog post "Florida's Anchoring Debate Heats Up," Sept. 17, 2014 online at *www.practical-sailor.com*.) The program was set to end in 2014, but was extended to 2017 after a failed attempt in the Florida Legislature to give local municipalities more leeway to enact local ordinances. This attempted return to the pre-2009 minefield came in the form of amendments that Dade and Broward representatives slipped in to pending Fish and Wildlife legislation at the last minute. The legislation was narrowly voted down in both the House and Senate.

BoatUS, which like most boating advocacy groups has been frustrated by the lack of communication from state officials, expects similar legislation to reappear in the spring when the Florida Legislature returns from its break. Based on the tone and presentation of the FWC survey (see the Nov. 25, 2014 *Inside Practical Sailor* post "Florida Anchoring Survey: Here Today Gone—"), it seems clear to me that the online survey is associated with an impending, renewed effort to shuffle cruising boats into paid mooring fields and marinas.

As with the survey and past public hearings, I don't expect much warning when any new anchoring legislation comes up in Tallahassee. A few people have suggested that the survey and the poorly advertised hearings are simply a reflection of government ineptitude, but I don't buy it. In either case, we'll have to post an anchor watch for the next year or so, keeping an eye out for a loose barge of bad news threatening to drag down on us all.

Front cover: The Tartan 37 More at Rest *enjoys an evening sail in New England. (photo courtesy of Tom Wells)*

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PRACTICAL SAILOR ACCEPTS NO COMMERCIAL ADVERTISING

Cruiser William Ennis uses an Icom M802 SSB system (right) aboard his Passport 40, Wings *(above), seen here moored off the Bora Bora Yacht Club. The setup includes a GAM split backstay (seen above), KISS counterpoise, and a Pactor Dragon modem.*

Photos courtesy of William Ennis

SSB FIELD REPORT

This is in regard to the excellent November and December 2014 articles on SSB radios. I installed an Icom M802, KISS counterpoise, GAM backstay antenna, and Pactor Dragon modem for our Pacific crossing. Our boat is now on the hard in Fiji. We spent two years cruising in the Sea of Cortez prior to sailing to the Marquesas.

The M802 is easy to use, powerful, and has most of the features that a cruiser needs. Coupled with the Pactor Dragon modem, I can use a laptop to send and receive email, update our blog, and request and receive any and all weather and sea-state information that's available. In addition, we can communicate with virtually any Ham radio in the world via voice and can participate in the all-important cruisers' nets throughout the Pacific. In my opinion, daily contact with other cruisers, especially during a crossing, is a dominant reason to go with SSB. The Icom M802 uses little current when it's in standby or receive mode (the technology in SSBs suppresses the carrier and one sideband), so listening to other users or nets is not a strategy that's power-hungry.

I'd like to point out that one needs not cut the backstay for a suitable antenna, but can use the GAM split-backstay antenna. Also, one need not trouble with 100 square feet of copper foil but can use the KISS counterpoise. I do not have a statistical control on my boat, of course, but I regularly communicate with SailMail and WinLink stations that are over 3,000 nautical miles from us. Our system worked well.

When I installed the SSB system, I needed to fully understand what I was doing and what supplies I needed to haul to Mexico for the installation. I depended on a fine book called "Icom ICM802 Starting from Scratch." It details the installation techniques that I used, and even included a list of supplies that I would need and where each item should be installed, as well as a wonderful troubleshooting section. My experience was that the installation flowed much more smoothly with the book in hand, and I recommend it to anyone planning to install the radio. The book's author, Commander Terry Sparks, has a series of books about the M802 and cruising in general. We've depended on and used our M802 extensively while cruising.

My recommendation is that prospective users of an SSB budget for a Pactor Dragon modem as well, since it is the final hardware component for connecting 1950s radio technology to the modern world open to a laptop computer. Pactor compression is simply the only game in town, and the new P4 family of modems is extraordinary and communicates well with the M802. Airmail, as amazing as it is, is still free to everyone and most email services still use it. You mention in your article, and I concur, that acquiring your FCC General HF license will double the number of stations to which you can connect for email (and WinLink is free to Hams!), and increase the number of frequencies that are available for your use.

William Ennis
Wings, 1984 Passport 40
Alaska

THE RIGHT FILTERS

I just ran into something that probably affects thousands of sailors: needing the correct respirator filters, particularly for two-part and bottom paints. It took me I would guess about 12 hours on the phone chasing the correct information, which I hasten to add no one seems to make easy to get to or clear once you do.

Long story short, after connecting with a tech at 3M, I learned there is a great deal of misinformation about which is the right filter to use when applying noxious paints. 3M now has a listing on the Web of filters, masks, and appropriate applications by chemical. I think this is vital for all to know. The Web address: *http://multimedia.3m.com/mws/media/639110O/3m-respirator-selection-guide.pdf.*

I just redid my dinghy with Interlux Perfection two-part and used 3M's

Winter Reading from *PS* Online

As a subscriber, you have free access to our back-issue archive—more than 1,200 articles. Be sure to dive in and dig around when you're looking for how-to tips or info on sailing products. Here are a few topics you might find relevant this season.

• Looking to keep warm onboard during this bitter winter? The little portable, alcohol-powered HeatMate heater has kept testers toasty through four Chesapeake Bay winters on board. Check out our review in the March 2010 issue.

• We also recently tested marine water heaters. FInd out which one was the best online, in the December 2013 issue, and get the scoop on whether tankless water heaters are safe to use onboard in the February 2014 issue online.

• If you live in the way-frigid north and keep your boat buttoned up all winter long, some sort of winter cover is in order. Find out what to look for in a winter cover in the Dec. 4, 2012 *Inside Practical Sailor* blog online. And, if you're the handy sort, learn how to construct an easy do-it-yourself cover frame in the Sept. 8, 2011 blog post. Another option is a fitted canvas cover. Visit us online to find out which canvas brand is the best material for your climate and needs (*PS*, December 2011). You'll find other tips for protecting your boat's deck from ice damage online in the Sept. 21, 2011 *Inside Practical Sailor.*

• Planning to spruce up your brightwork this spring? We just launched a new test of exterior wood finishes, including the new Awlgrip Awlwood (*PS*, October 2014 online). Look for the initial report in a spring issue. In the meantime, read about our last search for the ideal wood finish when welooked at the different types of finishes, their pros and cons, and how easy they were to apply (one-part varnishes, August 2007; varnish alternatives, October 2007; two-part varnishes, December 2007; teak oils and stains, April 2008). We rated the test products every six months and reported on the coatings' durability in the May 2009, December 2009, January 2011, and September 2011 issues.

6006 Multi Gas/Vapor Cartridge filter. It went from a dreaded, oozy-feeling, headache project to a joy, thanks to the right respirator filter.

Frank Thibodeau
Sceptre 41
Maine

BREAKING BOOM

One comment that should be included in the boom preventer discussion (*Waypoints*, Oct. 22, 2014) is that you need to be able to release it in a controlled manner if you do have an unintentional jibe. We used the vang to the toerail on my S2 -9.1 successfully for years. We had an accidental jibe going downwind with a chute in 22 knots over the deck. The spinnaker and the leeward toerail were in the water with the preventer holding the main in place to weather. There was too much tension on the vang to release it to free the main. My crew reached for his knife to cut it, but the boom broke at the vang before he could do it. In hindsight, this was probably for the better. If he had cut the vang, the boom would have gone up, and might have taken out the backstay as it crossed the boat. A better way would be to lead a line from a winch, through a block on the toerail, then to the boom, so you can let the boom down slowly in the event of an accidental jibe and subsequent knockdown.

John Brady
Director of PE Sailing,
Dartmouth College,
New Hampshire

ANCHORING RIGHTS

In regard to your Nov. 26, 2014 blog on Florida Fish and Wildlife's public survey on anchoring rights in Florida: Extending adjacent private property owners' control (ownership) over public waterways would be a dangerous abridgment of long-established legal precedents. They own only what they own. The public owns the waterways.

Safe anchoring is the boat owner's concern covered by existing safety law. Forcing boats to hopscotch around on

Photos by Ralph Naranjo and courtesy of manufacturers

Mantus Upgrades Hook Latch


Mantus Chain Hook with new latch

When we reviewed the Mantus Chain Hook (see *PS* December 2013 online), we found a lot to like, but testers criticized the hook's tendency to come off the chain in some conditions, particularly when the chain was lying on the bottom in calm conditions. Mantus went back to the drawing board with the hook, and provided us with their newly designed injection molded latch retrofit to test.

A simple bit of engineered plastic, the new latch is easily snapped into place with the thumb and retracted just as easily, retaining the hook's simple one-hand action we liked. We've tested it though 1,000 cycles (our thumbs are tired) and saw little wear. We also tried it out during many dozens of anchoring cycles over eight months, purposely letting it rest on all sorts of sea bottoms. Not a single time did the hook come undone as it had before the retrofit. We like the new latch, and now can recommend the hook.

The new latch is included with all current Mantus Chain Hooks, and the company will supply the plastic latch to all previous purchasers at no cost.

For more information, contact Mantus Anchors at *www.mantusanchors.com* or 855/262-6887.

a timetable would be undue harassment. These issues are covered by existing responsibility rules. The waterways are not private streets or city streets; they are public domain.

Dall Wilson
Via *Inside Practical Sailor*

TOO MANY RULES

Anchoring should remain a freedom that all boaters can enjoy responsibly. If a boater is being a nuisance to a waterfront homeowner by being noisy or littering, the homeowner can and should notify authorities just as you would a troublesome land neighbor. There are already too many rules on the water, and anchoring should remain unrestricted.

Kevin Mulligan
Via *Inside Practical Sailor*

SEEING BOTH SIDES

As a waterfront owner and sailor, I feel I have lived both sides of this issue. After being kept awake by all night parties at anchor in front of my house, I've had to police the beach for empty bottles, garbage, and even soiled diapers; furthermore, I had to snorkel the shore line to remove broken glass bottles to protect kids from cut feet.

As a sailor, I understand the need for appropriate access to safe anchorages, but I don't expect to be able to anchor anywhere I please. [The Nov. 26, 2014 blog] is big on sarcasm and lacking in balance. Property owners and boaters have rights. It's unfortunate that government is so inept (as is so often the case) at balancing the needs of both. Does commonsense get applied to legislation anymore?

Michael Serafini
Via *Inside Practical Sailor*

WHAT ABOUT FLOSS?

In your review of whipping twines in the December 2014 issue, you forgot to mention dental floss. I have used flat-ribbon dental floss for years to whip lines. It comes in a handy container, holds snuggly, and seem to resist UV and the marine environment very nicely. The ribbon variety lays flat and does not hurt the line.

C. Henry Depew
Sisu 26
Tallahassee, Fla.

Dental floss (usually nylon or polyester) is much weaker than the weakest twine we tested, and it's not much cheaper than its twine equivalent. It will not last as long as the twines we tested. With all that said, we have used it for sewing canvas and whipping; as you point out, it works. It will do in a pinch, but the right twine is best for stitching splices and other critical jobs.

EXPRESS 37

As a sailor who long coveted an Express 37, and who finally bought one four years ago, I really enjoyed your review of the Express 37 (see *PS* November 2014 online). However, the article seemingly referred to contemporary conversations with designer Carl Schumacher.

Fred Kaseburg
Champagne Express, Express 37
Seattle

The review was an updated and expanded version of an earlier test. We regret not clarifying that Schumacher had passed. Thanks for setting the record straight.

Practical Sailor welcomes reader comments and questions. Send email to *practicalsailor@belvoirpubs.com*; include your name, homeport, boat type, and boat name. Send Gear Graveyard samples to PS at 7820 Holiday Dr. S., Suite 315, Sarasota, FL 34231.

A bird's eye view of the deck of reader Mark Schneider's Norseman 447, Wendaway.

Photo courtesy of Mark Schneider

SAN DIEGO GALVANIZING

I dropped off my fabulous 33-kilogram Spade anchor at San Diego Galvanizing (*www.sandiegogalvanizing.com*) to get rid of some rust stains. The shop's owner, Lewis Wise, called me and said he couldn't do the job. Why? Safety. As a metallurgist, Wise said that due to a small patch of corrosion at the junction of the stock and the flukes, he believed the anchor should be retired. What an incredible example of true integrity!

I emailed Spade Anchor (*www.spadeanchorusa.com*) and attached some photos that Wise had sent to me along with his reasons. Within a half-day, I got an email from a Spade senior executive. The Spade engineers wanted to see the anchor. If it was a manufacturing defect, they'd replace it.

Turns out that this particular Spade was one of the original models, sold to me by a retailer who had it in stock for years. My new one is much improved, and so is my respect for both of these businesses, which acted with integrity and promptness.

Mark Schneider
Wendaway, Norseman 447

DMI MARINE

I have an older, no frills, yet solid Datamarine depth sounder that stopped working mid-season. It must be 25-plus years old. Because of the age of the depth sounder, replacing it with new would also require a new transducer, which means hauling my boat. Thankfully, DMI (*www.dmimarine.com*) expertly repaired my sounder for a reasonable fee. Plus, it was returned to me in just a few weeks in brand-new condition. Steve, the owner at DMI, bought out Datamarines parts inventory 13 years ago.

In addition to the repair services, they have quickly and politely helped me over the phone with technical questions. When I call their office, the staff is knowledgeable, courteous, and pleasant.

Jordan Snyder
Base Camp, 1987 Pearson 27
Bethesda, Md.

SLO SAIL & CANVAS

Some lofts sell storm trysails like Starbucks sells coffee—in small, medium, and large sizes; others guess at the sail size without asking important questions (e.g. the sail area at my deepest reef point); and one loft tried selling me a new mainsail with "extra deep reefs," claiming I didn't need a trysail. I almost gave up before contacting a small loft, SLO Sail & Canvas (*www.slosailandcanvas.com*), where I was met by expert sailmakers who walked me through the process of designing a sail and even offered to send me samples of cloth and stitching.

Thankfully, they built a strong, perfectly sized sail, because a few months later, we found ourselves fully reefed with increasing winds (40 knots sustained, gusts approaching 50), an uncooperative boom, and too much weather helm. The Trysail was a godsend!

I'd also like to thank Tides Marine (*www.tidesmarine.com*) for working with my sailmaker to design a strong trysail track that stood up against an area nicknamed as the Cape Horn of the Pacific!

I'm glad that the larger lofts continue to push the boundaries of science and pricing but for custom, safety-critical jobs, I'm happy that small shops with excellent customer service still exist.

John Konrad
Via email

SALT-AWAY

I've been using the Salt-Away (*www.saltawayproducts.com*) mixing unit and solution for several years now and am quite satisfied with the results. I flush my Yanmar diesel's raw-water system with the Salt-Away and have also used the solution to remove salt residue on the engine and engine compartment caused by a failed water pump. Recently, I somehow misplaced the O-ring in the top of the mixing unit. Salt-Away responded promptly to my email and sent a replacement O-ring (along with a couple of spares) and some new handy information on flushing procedures. That is commendable customer service for a great product!

Michael Quigley
Sea Flourishes, Beneteau 343
Marina del Rey, Calif.

GARHAUER

While installing our Garhauer E-Z Glide adjustable genoa car system, I ran into a problem: Because of the length-wise curvature of the deck (and hence the tracks), the cars got stuck because they hit the deck under the track. I called Mark Felgenhauer at Garhauer. While he had not encountered this problem before, he thought that they might be able to modify the cars for me in a way that would make them work and told me to send them back. I was subsequently contacted by the specialist for the genoa cars, and he suggested that a reconfigured car with a shorter body and chamfered edges might address the issue. A week later, I received two custom-built cars, at no charge whatsoever, and to my delight, they installed and performed perfectly. I consider the customer service that I received from Garhauer exemplary and way beyond what I could have expected; they obviously are truly committed to standing behind their fine products, and I will be happy to buy from them again.

Bert van Zelst
Festina Lente, 1982 Bristol 35.5
Alexandria, Va.

Galvanized Coatings Test

Chain that is poorly galvanized can look like this in less than a season, after which the rate of corrosion accelerates.

Chain makers must find sweet spot between thickness and adhesion.

Photos by Jonathan Neeves

Corrosion attacks anchor chain long before it has reached the end of its useful life, and corrosion begins as soon the galvanized coating fails. Regalvanizing can breathe new life into old chain, but it is not so simple or affordable as it used to be. As we saw in our most recent report on chain (see *Practical Sailor* June 2014 online), some of the high-tensile grades require specialized skills to galvanize, and others can't be galvanized at all. Even if galvanizing is an option, removing rusty old chain from the boat and delivering it to the galvanizer can make moving pianos seem like a cinch.

Chain is expensive to buy, but it can be even more costly when it fails. As we advised in our June 2014 article "Looking into the High Test Myth," we recommend chain that is designated as "Proof Tested" chain from a supplier with a long reputation to uphold. "Proof tested" means the tensile strength of that specific chain has been physically tested. The chain should have a certificate from the manufacturer or a recognized testing agency indicating proof testing, and the markings on the new chain should indicate its grade (G30, G3, G40, etc.).

If you are interested in high-tensile G70 chain, which offers greater strength by weight but cannot be regalvanized, you should first read the June 2014 article to understand the pros and cons. We also recommend that you request a break test be conducted on 3-foot lengths from at least one end of the chain you want to buy. Be sure to ask to have the tested section returned to you, so you can check coating integrity. (Given the variability we found between stated and actual breaking strengths, we think break-testing is a sensible practice for G43 chain as well.)

When we buy chain that is certified to meet certain test criteria, we know what we are getting in terms of strength. The mystery is: How long will the chain last? In nearly every chain test we've carried out (and there have been many), durability becomes a key factor when looking for the best value. And if you are going to look at durability, you have to consider galvanized coating. In this report, the first of its kind by *Practical Sailor*, we look specifically at galvanized coatings, hoping to shed a little light on the protective skin that keeps some chains rust-free for months, or even years longer than others.

Other recent reports on chain quality appeared in the December 2008, November 2008, January 2008, January 2007, October 2006, April 2006, and Dec. 1, 1999 issues. All of these articles are available online at *www.practical-sailor.com*.

WHAT WE TESTED

The outermost coating of anchor chain is typically a soft sacrificial layer of zinc. Underneath this zinc coating are various zinc/iron (Zn/Fe) alloy layers that are harder than the zinc, and even the underlying raw steel. The abrasion and corrosion performance of your chain depends on those Zn/Fe alloy layers, sandwiched between the raw zinc and the raw steel. To compare these coatings, we sought chain samples from a range of manufacturers and suppliers in the United States, Australia, and Europe.

From Campbell and Peerless (which includes the popular U.S. brand Acco), we looked at G30, G43, and G70—all 5/16-inch chain. From Canada Metal Pacific (CMP), we looked at 8-millimeter (the near equivalent of 5/16-inch), Grade L (G30) Titan chain, made in their Ningbo, China factory. From the Italian company Maggi, we looked at

PS VALUE GUIDE GALVANIZED ANCHOR CHAIN

MAKER	SIZE	MEASURED SIZE	MIN. BREAK STRENGTH SPEC.	TESTED TENSILE STRENGTH	MAX DEFORMATION	APPROX. YIELD	COATING INTEGRITY	COATING THICKNESS	ABRASION RESISTANCE *
G70									
PEERLESS ✓	5/16 in.	8.65 mm	14,100 lbs. (WM)	14,216 lbs.	10.24 %	9,173 lbs.	No flaking, good adhesion	130 microns	5
CAMPBELL	5/16 in.	8.747 mm	Not specified	13,999 lbs.	7.29 %	9,404 lbs.	No flaking, good adhesion	120 microns	8
MAGGI	8 mm	8.04 mm	15,750 lbs.	14,227 lbs.	14.50 %	10,116 lbs.	No flaking, good adhesion	50 microns	14
G43									
PEERLESS	5/16 in.	8.56 mm	11,600 lbs.	12,055 lbs.	13.50 %	6,700 lbs.	No flaking, good adhesion	70 microns	11
CAMPBELL ✓	5/16 in.	8.54 mm	11,600 lbs.	13,571 lbs.	14.30 %	7,306 lbs.	No flaking, good adhesion	110 microns	2
MAGGI (G40)	8 mm	8.12 mm	9,000 lbs.	9,326 lbs.	18.80 %	4,500 lbs.	Much flaking, poor adhesion	185 microns	1
SERAFINI (P/G40)	8 mm	8.23 mm	9,000 lbs.	8,629 lbs.	6.57 %	4,000 lbs.	No flaking, good adhesion	70 microns	12
G30									
PEERLESS ★	5/16 in.	8.864 mm	7,600 lbs.	9,845 lbs.	12.60 %	5,504 lbs.	No flaking, good adhesion	144 microns	6
CAMPBELL	5/16 in.	8.928 mm	7,600 lbs.	8,937 lbs.	9.29 %	3,727 lbs.	No flaking, good adhesion	80 microns	10
GRADE L/G30									
CMP ✓	8 mm	8.116 mm	7,600 lbs.	9,485 lbs.	21.80 %	4,587 lbs.	Some flaking, okay adhesion	121 microns	7
PWB	8 mm	8.15 mm	7,600 lbs.	8,484 lbs.	42.80 %	4,750 lbs.	No flaking, good adhesion	110 microns	9
PWB	8 mm	8.1 mm	7,600 lbs.	8,251 lbs.	17.60 %	4,750 lbs.	No flaking, good adhesion	65 microns	13
SERAFINI	8 mm	8.26 mm	7,600 lbs.	8,811 lbs.	21 %	4,500 lbs.	No flaking, good adhesion	120 microns	4
SHORT LINK ANCHOR									
BCF CHINESE	8 mm	8.21 mm	No Specification	12,176 lbs.	13 %	7,500 lbs.	minor flaking, some lack of adhesion	140 microns	3
WHIT. CHINESE	8 mm	8.10 mm	No Specification	6,274 lbs.	27 %	3,140 lbs.	No flaking, good adhesion	45 microns	15

★ Best Choice ✓ Recommended $ Budget Buy * Abrasion resistance ranking: 1 = Best

8-millimeter G40 and G70 chain. From the Australian company Serafini, we looked at Grade L (G30) and Grade P (G40). From PWB, another Australian source, we tested Grade L (G30). All of these chains were uniquely marked, making it possible to define both quality and who makes them. For a full explanation of the grades and standards see "Making Sense of Marine Grade Standards," *PS* June 2014 online.

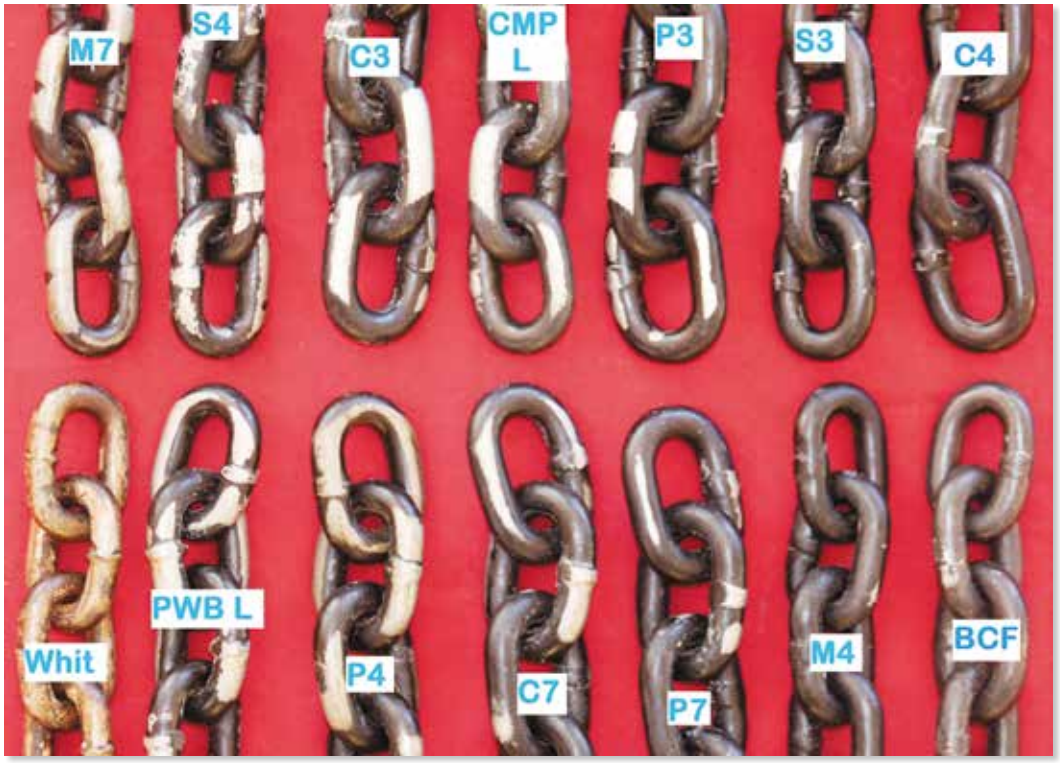
We also sourced generic 8-millimeter "short-link chain" from China that we sourced from two different Australian chandlers, Whitworths and BCF, which imports through BLA. These chains were not marked. Neither chandler declares the source in China of their chain, and we cannot be sure they have just one source. They are effectively mystery chains.

All of the products we looked at were Hot Dipped Galvanized (HDG). We also tested some samples treated using the Armorgalv process, a unique galvanizing system that is compatible with some of the higher test chains that cannot use the hot-dip method. In this article, we offer a preliminary look at Armorgalv. We will be reporting on that test in a future issue of *Practical Sailor*.

HOW WE TESTED

We took 12 inches as a standard length of our samples, each was cut from the same 7-foot lengths used in our most recent tests and suspended from our test boat so that they dragged simultaneously across the bottom (fine sand with some mud) and were allowed to abrade. We had 18 samples in all.

We allowed 30 days for the abra-



After 70 days of testing, the degree of wear varied widely. The chains are arranged here from most abraded to least abraded. ***From left to right (top):*** *Maggi G70, Serafini G43, Campbell G30, Canada Metal Pacific L/G30, Peerless G30, Serafini S30, Campbell G43.* **Left to right (bottom):** *Whitworths, PWB L, Peerless G43, Campbell G70, Peerless G70, Maggi G43, BCF.*

sion testing and then stored the chain in a lidded plastic bucket (to simulate an anchor locker) for 30 days. We then resumed abrasion testing for another 40 days—for a total of 70 days of abrasion testing.

It is important to note that 70 days in our test is not the same as 70 days at anchor. It is probably more like five to six months at anchor, but this is a very rough estimate and highly variable depending on the seabed.

Anchor chain is not only subject to seabed abrasion, but it is also abused as it runs through the windlass gypsy. Poorly adhered coatings will rub off or chip as the chain passes through a gypsy. Although we did not run the chain through a gypsy, we closely examined each chain for signs of chipping and flaking after the abrasion test. The most revealing chip/flake test involved stretching each chain to its breaking point and examining links that had broken and stretched. Although chains do not undergo such extreme elongation during normal use, we feel that the ability of a coating to adhere and resist flaking while the chain is stretched is still a useful benchmark when comparing galvanized coating.

As a rule of thumb, the thicker the galvanized coating, the longer that coating should last. We measured thickness four ways: using a thickness meter that compared magnetic flux (zinc is nonmagnetic), microscopically (using polished sections), using a micrometer (subtracting the known uncoated wire thickness from total thickness), and finally, using the formulas and measuring technique described in the accompanying "How We Tested." We were pleased to see that all four means of measuring correlated. As in past chain tests, we also weighed links before and after exposure to saltwater testing. This gave us an idea of overall corrosion resistance, but it was hard to differentiate between mass lost from the iron link itself or the zinc coating, which we wanted to pin down.

Of course, the abrasion resistance of the galvanized coating isn't solely a function of thickness. It is also a function of steel chemistry and the chemistry of the galvanizing bath. Because zinc is three times more expensive than the iron it protects, makers try different methods to prolong protection with thinner coatings. We couldn't confirm the coating or bath chemistry, which is why we relied heavily on a visual inspection.

The biggest problem with our test is that we only tested one small sample from countless feet that each manufacturer churns out. It was a spot check that might have just landed on a bad (or good) apple. Without months of such random spot checks, we can't know whether the sample we tested is an anomaly or representative of all batches.

WHAT WE FOUND

Looking at a rough correlation of our coating thickness measurements and abrasion performance, we can conclude that a coating thickness in excess of 100 microns is adequate; anything less, and you can count on a short life before corrosion sets in. If you can find chain with a well-adhered 150-micron coating, then your links are surely well protected. Based on our findings, about twice the coating weight seems to approximate to twice the abrasion resistance. Coatings that are too thick can be brittle and prone to flaking. However, some of the thickest coatings in our test were well adhered.

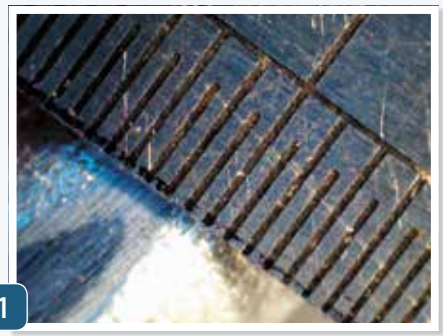
Surprisingly, one of the best performing chains was one of the generic Chinese chains, but the other generic Chinese chain was appalling. It lost all of its coating by the end of our test period—on every link! Although our destructive testing revealed that the longer-lasting chain had a thicker galvanized coating, by just looking at these chains new, there was no obvious way to differentiate them.

Neither of these chains are manufactured to an industry specification; neither has any marking that would allow us distinguish one chain from the other; and neither retailer we bought from would or could reveal the source of the chain. Given a total inability to differentiate these products, we cannot recommend anyone invest in a chain without marking and without specification.

A few chains showed poor adhesion

Zooming in on Thickness, Adhesion, and Misalignment

Once each link was cut on one side opposite the weld, one half of the link was put in a vice, the other half was twisted 180 degrees, forming an "S." This was enough distortion to cause the galvanic coatings on some of the links to fail.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1. Testers measured galvanized thickness of the Campbell G7 with a steel rule and calipers, and applied some basic math (see "How We Tested") to estimate thickness.

2. Maggi's G4 after break test shows obvious flaking. The Italian-made chain had the thickest galvanized coating, but showed adhesion problems.

3. This chain, Maggi G4, has been twisted into an S shape. White arrows indicate where the two ends of the chain once met to form a complete link.

4. The sample from Canada Metal Pacific also showed peeling, although not as much as the Maggi G4.

5. Close inspection revealed that the wire on some links in the Serafini sample was not properly aligned at the weld joint. This is something sailors can easily spot when chain shopping.

of the galvanizing layer to the base steel. The Maggi Aqua 4 (G40) was particularly bad, with large flakes separating from the base. The failures came both as a result of our break tests and through our simple twist test. (See "How We Tested.") Consequently, although the Maggi G40 acquitted itself well in our seabed abrasion test—it had the thickest galvanized coating of our samples—the poor adhesion of the galvanizing make us very cautious. The CMP Grade L (G30) also showed some signs of flaking, although it showed high strength for a G30 product. CMP also makes a G43 product, which we have not yet tested.

The BCF Chinese sample had some small areas of galvanized coating showing flaking—but since we cannot recommend any uncertified such product (for a number of reasons)—it's not that relevant. None of the other samples showed flaking in our break test or our twist test.

Both Campbell and Peerless showed consistent coating thickness and good adhesion of the galvanized layer to the base steel. Both did well in our seabed abrasion test. Both had a generous layer of galvanizing. Based on our post-test observations, it appeared that Campbell's galvanizing in the G43 category held up better than the Peerless, but the differences are minor—so small that we could not rule out some environmental or other testing variable as the cause.

Both Campbell and Peerless did a good job of galvanizing their G70. Their samples clearly held up better than Maggi's G70 sample, whose thin galvanized layer eroded quickly.

Although the galvanizing did not endure as well as its G70 competitors, testers noted that the Maggi's smaller diameter links were pound-for-pound stronger than the Campbell and Peerless chains. However, since you cannot re-galvanize G70 chain without compromising strength, we would prefer to see a product with a longer-lasting coating.

Overall, Maggi's galvanizing leaves much to be desired. It flaked off on the G40 samples and was very thin on the G70 sample. CMP had a reasonable coating thickness, but like Maggi's G40, it showed signs of poor adhesion.

Both PWB and Serafini subcontract the galvanizing process to outside sources, and both had variable results. Adhesion was good, but coating thicknesses varied, resulting in inconsistent abrasion resistance. Testers also noted

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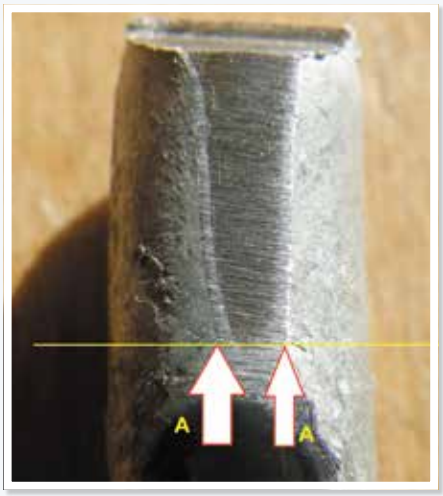
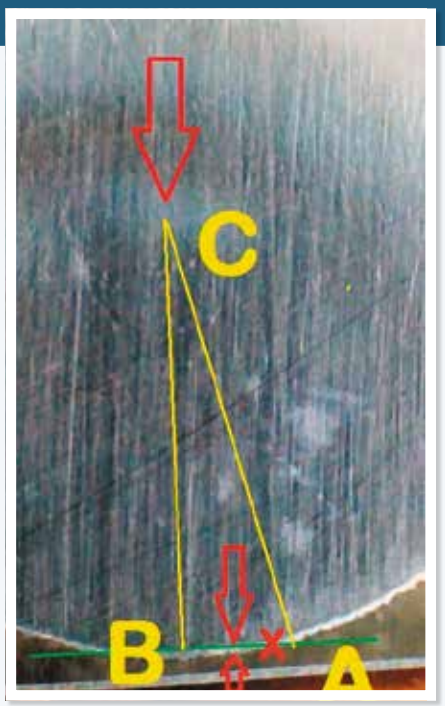
Estimating Coating Thickness

There are no industry standards for how thick a galvanized coating should be on an anchor chain or mooring chain, and manufacturers don't publish this information. Fortunately, with a bit of sleuthwork, you can determine just how good the galvanized coating is on your chain by carrying out a couple of tests on some sample links you can obtain from your local chandler.





Two methods we used to compare thickness are illustrated above. A full description of the measuring and calculation methods is described in the accompanying article. ***Left:*** *Using Method B, you must first grind off the galvanized layer using a flat, rigid abrasive; then, you can estimate the thickness of the galvanizing. The following measurements for line AA correspond to the respective estimates of coating thicknesses: 1.3* millimeters = *50 microns; 1.9* millimeters = *100 microns; 2.3* millimeters = *150 microns (100 microns is about the same thickness as a soda can).* ***Right:*** *Once the values for the radii CB and CA and the line AB are known, we can solve for* x, *which is a useful estimate of the galvanizing thickness.*

ADHESION

One of the oldest ways to test adhesion is a simple twist test, in which the galvanized material is bent and checked for coating failure.

Here's a quick-and-dirty twist test for galvanized chain. Put a link in a rugged bench vice—ours was 4 inches—and hold the link with the weld down so that you are clamping the semi-circular "crown" of the link. Cut right through the top of the link (one side only) with a hacksaw or angle grinder. The cut should be through the wire opposite the weld.

Take a decent-sized, adjustable wrench or vice-grip to the other end of the link and twist the link so that it is turned through 180 degrees. Examine the twisted section. If there is any flaking of the galvanized coating, the adhesion is poor. If the weld (or wire) looks cracked or weak, the chain is not fit for use.

THICKNESS CHECK

To measure thickness, you need some basic math, a micrometer, and a digital camera.

Method A: If we grind off the galvanizing so that raw steel shows through at point B, then the line AB, the tangent, is half the width of the material that would be exposed when grinding on a flat plane to reach bare metal (the total width is represented by AA in Method B, below). The radius of the uncoated chain is CB (C being the center of the chain wire). The radius of the chain including the galvanizing is CA, or CB + *x* (*x* being the thickness of the galvanizing). The line AB is at 90 degrees to CB, the radius.

Using the Pythagorean formula for right triangles, we can see how:

$CA^2 = (CB + x)^2 = AB^2 + CB^2$

This equation can be expressed using either the radius of the base wire (BC), which the manufacturer might specify, or by using CA, the wire radius including galvanizing. You can easily determine the radius CA by using a micrometer to measure the total diameter and dividing by 2.

Once the radius is known, you can solve for *x*, the thickness of galvanizing, using the following formula, in which CB is the wire radius, *x* is the coating thickness, and AB is half the length of the tangent: $x = CA - \sqrt{(CA^2 - AB^2)}$

Method B: Take one whole link, cut it in half, so you are cutting through the long section of the link. At the point of the cut, grind off the galvanizing at a very shallow angle. (An orbital sander with 80-grit sandpaper is enough.) You need to be very careful to grind flat. With a decent magnifying glass, or better, a close-up image from a digital camera, you will be able to see the base steel and the "halo" of the galvanizing coating. Using a finely marked ruler, vernier caliper, or similar form of measurement, measure the width, AA (half of AB in Method A), of the galvanized coating at the interface of coating and the base steel.

For a typical 5/16-inch short link chain with an average 8.6-millimeter diameter wire, coating thickness in microns corresponds to the following measurements (in millimeters) for AA:

50 microns = 1.3 millimeters
100 microns = 1.9 millimeters
150 microns = 2.3 millimeters

Based on our findings, 100 microns is adequate, 150 microns better, and 50 microns is unacceptable. Ideally, you want to make at least four measurements from as many links as the chandler will give you, and then average your findings. You should be able to measure fairly easily to 0.5 millimeters and interpolate for something smaller. (We used metric units as we have a metric steel rule, metric calipers, and a metric micrometer.)

Continued from page 10

that the Serafini chain's welded joints were all misaligned—each by about 1 millimeter. This is something to watch out for when you buy chain.

The importance of keeping galvanizing intact became apparent as the test progressed. At the site of the first damage, where only a small area of coating was removed, the galvanizing coating on surrounding links became sacrificed at a much faster rate. The corrosion effectively "spread" outward from the corroded area. This implies that anyone using chain long term—liveaboards, for example—are going to lose galvanizing relatively quickly, unless they take measures to protect these areas with a cold-galvanizing spray. It also seems likely that corrosion will begin at any flaws in the weld.

The amount of abrasion we saw suggests that chain wear will be a significant problem for liveaboards who spend months on the hook. For these people, it would be sensible to measure chain links for wear. Check links every 20 feet, every six months. This routine would be especially relevant for those who opt for the smaller-diameter G70.

CONCLUSION

Buying the correct sized G30 chain (to match your windlass) is the most cost-effective, sensible choice for most cruising sailors. All the G30 chain we tested, except the Whitworth Chinese supply, had a breaking strength close to or greater than 4 tons. This is two to three times greater than the 1.6-ton load calculated by the American Boat and Yacht Council (ABYC) on a 35-foot boat in 60 knots of wind. Given that we want a decent safety margin, chain does deteriorate (it gets worn and strength will diminish), and 60 knots is "unusual," then G30 looks more than adequate. Keep in mind that the ABYC data does not take into account any reduction in load that would be achieved through the proper use of snubbers or a second anchor. (For more on the function of snubbers in any anchoring system, see *Practical Sailor* November 2013 online.)

Overall, the Peerless G30 chain is our Best Choice. It well exceeds the strength requirement and has very good abrasion resistance. Both CMP and Campbell chain are also more than adequate in terms of strength, but neither is as resistant to abrasion as the Peerless G30. The CMP's galvanizing adhesion was also lacking.

Campbell's G43 fared better than that of Peerless, both in terms of strength and abrasion resistance—although the abrasion resistance was not as obvious. More testing is needed to determine whether our samples are typical and represent the average, but buying from either Peerless or Campbell in the G43 Grade is a good choice.

The metric chains didn't thrill us. None matched the quality, in terms of coating performance, of the equivalent American chains (Peerless and Campbell). We are uncomfortable with Maggi's G40 galvanizing adhesion. We think the coating thickness of Maggi G70 is too thin. Canada Metals Pacific was the leader here, with good coverage, okay abrasion resistance, and some flaking.

Neither the PWB nor Serafini samples could compete with either Campbell or Peerless. Serafini's chain raised many questions. Its Grade P (G40) does not meet specification for strength and has an extraordinarily low yield. Also, the welds are out of alignment, which will result in differing levels of wear, if nothing else.

Choosing metric chain is an individual's choice. One option would be to check a sample for galvanizing thickness and buy when you find a batch with a coating in excess of 100 microns. Another would be to resist replacement for another year, with the hopes that CMP and Maggi can improve their game and get the galvanizing to adhere.

We remain slightly ambivalent toward G70 chain and anyone opting for this route would need to weigh Maggi's strength but only moderate abrasion resistance against the slightly lower strength of the Peerless or Campbell product and its much better abrasion resistance. Our recommendation would be American chain as it will have a much longer life. Frankly, if we were to look to high-tensile chain, we would seriously look at Armorgalv G80 (rather than HDG G70), as it is stronger after galvanizing, has greater ability to deform under stress, and has the potential to be more abrasion resistant.

Our ongoing tests of Armorgalv-coated chain so far appear to support the licensor's contention that the coating is more abrasion resistant than conventional hot-dipped. In fact, the average of Armorgalv wear over the first 30 days was 50 percent that of the average hot-dipped, meaning that Armorgalv could last twice as long. However, to have twice the life, the coatings need to be the same thickness, and our examination suggests current Armorgalv coatings are too thin, and possibly not using the harder surface to best advantage.

The U.S. Navy (in some projects) and a major American utility have opted for Armorgalv instead of hot-dipped galvanizing, but this choice seems based on corrosion resistance rather than the aggressive abrasive environment of the seabed. We are looking at this issue in more detail currently and will report when the abrasion tests are completed. For high-test chains, we could not hesitate to consider Armorgalv coating (as it should allow repeated coating) and allow better strength retention. We have also found Armorgalv ideal for coating intricate parts, such as hammerlocks and specialist shackles, and will again report separately.

CONTACTS

PEERLESS/ACCO, www.peerlesschain.com

CAMPBELL, www.campbellchainandfittings.com

PWB, www.pwbanchor.com.au

MAGGI, www.maggigroup.com

CMP, www.titanmarineproducts.com

SERAFINI, www.serafinichains.com

BCF, www.bcf.com.au

WHITWORTHS, www.whitworths.com.au

BLA, www.bla.com.au

The batten car or slug you use will depend on the track you have. Carbon-fiber rigs tend to have external tracks.

Photos by Ralph Naranjo

Survey: Mainsail Track Hardware

Experts offer hard-won advice on mainsail luff slide-car systems.

It's been almost 10 years since *Practical Sailor* weighed in specifically on mainsail track hardware. (See *Practical Sailor*, Feb. 1, 2005 online) At the time, we offered a summary of the products designed to manage what we termed "the three Ss of mainsail handling—setting, shortening, and striking." In that article, we focused on the gear used with full-battened mainsails, which were becoming increasingly popular among a broad spectrum of sailboat owners then.

Ten years ago, we cautioned readers that "on a modern sailboat, handling the mainsail quickly and surely is…important, both as a safety measure and a matter of convenience." Of course, that hasn't changed over the ensuing decade, and neither has the essential nature of this equipment. What we wrote then still applies: "Low-friction systems designed and built to handle the loads generated by full battens under pressure fall into two basic categories: those that use a dedicated track attached to the mast and those that utilize a slide or car fitted for the existing groove in the spar."

Though at least one new product line for taming mainsail luffs has been introduced since we published that evaluation—Karver's KMS cars—there hasn't been significant evolution in this realm. Other than advances in the batten end connectors, the mainsail tracks, cars, and slides used today are much the same as they were 10 years ago. Nonetheless, it's important for *Practical Sailor* to offer an overview of available options, along with some valuable advice that might particularly benefit those owners who struggle with less than efficient mainsail luff systems.

THE SURVEY

In order to get a grasp on the products that work best—and to garner useful advice—we surveyed a cadre of sailmakers representing the larger, more established firms in this field to understand their recommendations for existing options. To allow for varying sailing conditions, we purposely checked in with sailmakers in a variety of regions across the U.S., including the Northeast, the Southeast, the Gulf Coast, the West Coast, and the Midwest.

And, to provide these respondents with some structure for their answers, we contrived two sample scenarios and asked them to advise the boat owner in each. The first scenario involves a Hunter 27 whose mainsail has only partial battens and whose owner would like to more efficiently raise, reef, and lower the mainsail. (Since a majority of boats from Hunter-Marlow Marine are now sold with in-mast furling, we stipulated that this was an older model with a mast groove and slides on the luff.) For the second scenario, we postulated that the owner of a Bavaria 50 had recently moved to a full-battened mainsail and wanted to improve the efficiency of the mainsail luff system.

One of the most attractive features of the Strong Track system is the ease of installation. The ultra-high molecular plastic track arrives in a coil and fits in your existing track slot. Here (above), sailmaker Dave Baxter of Baxter Sails feeds the new Strong Track into the old track. The system is not recommended for 50-footers, big cats, and storm trysails. Some tracks that have been in the sun or weather for 10 years or more have begut to craze (left), indicating that it's time for replacement.

THE EXPERTS WEIGH IN

Like the majority of the sailmakers we spoke to, Joe Cooper, a 40-year veteran racing sailor and sailmaker who now works as a consultant for Hood Sails in Middletown, R.I., had questions of his own: "My immediate response is what kind of sailing does the customer plan to do? From a sailmaker's perspective, you really have to understand what the guy wants to do with his boat, and that may evolve. And, depending upon the boat and the setup, there are things he can do to improve efficiency that don't rise to the level of replacing the luff slide/car system."

According to Cooper, almost everyone jumps to the conclusion that the best fix is upgrading the luff-slide system for more friction-free sailhandling. He said that our hypothetical Hunter owner will want to take a close look at the halyard itself and the mast sheaves—in fact, he should check anywhere that halyard friction might come into play.

Copper said that where possible, a helpful upgrade would be to increase the sheave diameter at the masthead and at all turning blocks. Reducing the halyard line diameter by switching to a smaller, less stretchy halyard can also help. [As we pointed out in our review of rope clutches (see *Practical Sailor* November 2014 online), there can be some hidden expenses to such an upgrade if the reduction is too great.]

Cooper's improvements point to a common shortfall in halyard handling systems on many production boats. "Cordage specialists tell me that you need an 8:1 ratio between the sheave and the line," Cooper said. "That means that if you have half-inch-diameter line, you should ideally have a 4-inch diameter sheave. The sheaves at the masthead, the base of the mast, and everywhere a main halyard turns are all candidates for upgrades. This is one of the most cost-effective things you can do."

Cooper explained that the slides or cars are one of 10 things in the equation that can affect how easy it is to set and douse the mainsail. "It's pretty clear that if you don't have a holistic approach to this issue, you're not going to end up with the best solution," he said.

In the San Francisco Bay area, Ben Mercer is the service technician at Quantum Sail Design Group's Point Richmond loft. A 12-year industry veteran, Mercer offered specific gear suggestions, advice we heard from several other sailmakers we spoke with. His initial recommendation as an option was a Tides Marine Strong Track. Described in our article on upgrading the cruising mainsail (see *Practical Sailor* August 2011 online), the strong track is a single length of low-friction, ultra-high molecular weight polyethylene plastic (UHMPE) that is machined to slide onto your existing mast track. The product is sold by the foot, and comes with user-selected batten boxes and slides.

"One key advantage to the Strong Track," Mercer explained, "is that you get a custom fit no matter what kind of mast you have. It doesn't matter whether it's external track or an internal groove. Among our customers, it's a very popular system. We've recommended them for singlehanded boats that are sailing to Hawaii in the Single Handed TransPac."

Tides Marine, maker of the Strong Track, offers plenty of pre-purchase guidance on its website. The company points out that not every boat is a contender for this system, and advises buyers to consult them before jumping in. Recommended sail area tops out at around 650 square feet (600 square feet for multihulls), and fully-battened sails with a lot of roach deserve special consideration, as they can put excessive loads on the hardware. The tracks are not recommended for storm trysails.

"The feedback that we get on the Tides Marine systems is very positive," Mercer said. "People always cite the ease of use, the lack of maintenance needed, and the fact that the owner can often carry out the installation himself pretty easily."

Mercer said that although bearing-

Slides with a low stack height make setting and dousing a sail easier. Full-batten systems will have much higher stack heights. The owner of this boat has added a lightweight block, stitched to the sail with webbing, at the first reef to reduce friction.

Photo by Ralph Naranjo

loaded track and car systems designed by Antal and Harken might be more durable and smoother under heavier loads, they are much more expensive. "A key benefit is that this system comes at roughly half the cost of installing an Antal track or a Harken track. Those tracks and cars/slides work really well, but the price difference is significant."

At the more economical end of the spectrum, Mercer advises his smaller boat customers with integral mast tracks to consider upgrading to Allslip Slides, which are precision molded from fiberglass-reinforced plastic impregnated with slippery polytetrafluoroethylene (PTFE, or Teflon). These slides were universally recommended by the sailmakers we surveyed.

"The only time that our recommendations are partial to a particular slide is in the case of the Allslip," Mercer said. "If the customer doesn't want to change out the track, then we try to put the focus on the Allslip slides, especially out here in the Bay Area because of the conditions that are prevalent."

Mercer said that in his experience, the Allslip slides have a greater longevity and seem to operate a little easier than the flat plastic slides from other manufacturers, even though they may look very similar.

For owners of larger boats—particularly those for whom cost isn't a primary concern—Mercer recommends Antal's track and slide system, which uses cars riding on composite inserts over an aluminum track. "This system is preferred for many carbon-fiber masts and offshore spars," he explained. "The slides have replaceable inserts that operate in essentially the same way as the Tides Marine system."

When it comes to a heavily loaded batten system, Mercer prefers ball-bearing car systems such as those by Harken, Ronstan, Rutgerson, and Selden. Which system you choose is often dictated by the mast track already in place.

Although early versions of these track-and-car systems created headaches for owners who had to deal with routine bearing replacement, more recent developments have made this task easier. "The majority of these companies have resolved the challenge of changing out those bearings by introducing captive bearing systems," Mercer said. Nevertheless, it is always a good idea to have a section of track, loader, or bucket handy to remove cars.

One recurring problem that Mercer has seen is decay caused by airborne pollution. He said boats that are kept in marinas near bridges or roads are exposed to airborne pollutants that can take a toll on mast-and-car systems.

"Airborne waste will affect any product, especially mast slide or car systems," Mercer explained. "We always recommend that owners in these situations take the time to go up the rig and clean out the mainsail track or groove using a soapy solution and a rag. After that, you can lubricate the track or groove with a dry silicone lubricant. If you don't clean it out properly and just start with lubrication, the lubricant will simply gunk up the area, and friction will be worse."

Tripp Fellabom of UK Sailmakers in Charleston, S.C., is a 38-year industry veteran. He told us that he, too, was a fan of the Tides Strong Track system, especially for someone like the owner of our hypothetical 27-foot Hunter.

"For my market, the Tides Strong Track makes sense," he said. "It's inexpensive, easy to install, and really bulletproof. There's just so little friction in the system." A further advantage, he explained, is that the system has no moving parts and essentially no fasteners. "It is, by far, the easiest approach to a luff slide system. It's a no-hassle, relatively lightweight system."

Fellabom explained that most of his customers have boats in the 28- to 50-foot range. "A lot of them come in to me wanting a fully battened mainsail. So, I tell them that they'll need to be concerned about the slide system due to the increased loads those battens put on the track fitting. And most of them are aware of that and tell me, 'Yeah, I'm going to have to go with a system that has ball-bearing cars like Harken's or Ronstan's.' But, if the boat's not over 50 feet, I always show them the Strong Track as an option."

For customers with larger boats (over 50 feet) who can afford more expensive options, Fellabom says that he prefers to "steer them to Antal Marine's system. I love Harken products, but what Antal makes is very good." Like Harken, Antal offers two kinds of aluminum cars, one with sliders (the HS system) that are lined with "composite fiber" and one with captive ball bearings (the Fireball system).

"The HS sliders have a little more friction than you'll typically sense on the Tides Strong Track," Fellabom explained, "but they work well."

We asked Fellabom why he recommends Antal's system over others. "I like Antal, because I'd rather rely on the composite-fiber bushings for boats over 50 feet LOA that are under heavy loading conditions. The ball bearings that are used in cars can wear out and then you have to take the cars off to replace them. That's a lot easier now with captive bearing cars, and Harken does make slider cars without ball bearings, but those are generally for boats 40 feet and under."

Regarding other options, Fellabom said that he has had to replace a number of systems that used Rutgerson mast track cars. "In my experience, anything

Friction Reduction

There are multiple ways to skin a cat when trying to reduce friction in the mast slides or cars. The trick is to keep the load as even as possible on both sides of the track or slot, to prevent binding.

1. Sailmaker David Baxter of Baxter Sails adjusts the batten tension on a new mainsail.

2. Full articulation at the external slide from Harken helps distribute the load.

3. Recirculating bearings on these Harken cars cut friction, but notice how dramatically the stack height increases.

Photos by Frank Lanier and Ralph Naranjo

with wheels that have contact with a mast has never worked correctly or won't have a long lifespan." That said, he did add that his preference for Antal comes primarily from the fact that he has installed more of those systems than he has Harken's Battcars. The only real downside to the Antal system, he said, was that it is more expensive than Harken's Battcars.

Master sailmaker Dolph Gabeler at North Sails in Costa Mesa, Calif., has been working with sailboat owners for over 40 years in locations around the globe. He told us that a 27-foot boat doesn't really warrant a track or car system.

"Honestly, few owners in that size range would be likely to spend $700 to $1,000 for a Tides Marine Strong Track system or a car-based system," Gabeler said. "And no one in that size range would really need it."

With a 27-foot boat, Gabeler said, you should be fine with just simple, flat slides. The Allslip slides, which are self-lubricating, are great choice, but those would only be necessary if the owner had a full-batten mainsail. He said that simple white plastic slides like those from Holt Allen or Metalmast should suffice. "These are internal flat slides, and they're the most economical option," Gabeler added.

Another economical route, according to Gabeler, is to take a hybrid approach. "I would recommend one full batten at the top of the mainsail, and I would have that ride on an Allslip slide that was webbed to the batten fitting. Most owners in this ballpark are going to use a system similar to that." Gabeler explained the main problem in small boats comes when an owner tries to add full battens that are attached to round slugs. "That approach will not work," he said.

Gabeler also recommended that the owner of our hypothetical Hunter apply a dry lubricant to the track or groove on his mast. Wet lubrication collects dirt and salt over time, and thus adds friction. A dry Teflon lubricant would be the way to go. We usually suggest McLube dry spray, and (applying it) once a season should be enough."

Regarding the Bavaria owner, Gabeler said he would be a good candidate for the Tides Marine Strong Track system. He said that the system is a good option for boats from around 28 feet up to about 52 or 54 feet. In the case of a performance multihull, he pegged the upper limit at about 40 feet. "I'm a big advocate of the Strong Track system," he said. "Although owners can install it, we often recommend that a local rigger be involved if we're not managing the installation."

The big advantage of the Strong Track system, said Gabeler, is simplicity. "As soon as you go to a car system, whether it's Antal or Harken or Selden, you have to add a track with fasteners, and you often have to get a rigger involved. So it's much more complex than the Tides Marine system, and it's more expensive as well. Generally, those car-based systems cost $3,000 to $4,000 for a 50-foot boat, whereas the Tides Marine system would be less than $2,000. The Tides system isn't just easier to install and maintain,

Full-batten systems generally impart more friction on the slides as the compression pushes slides against the slot or track. If the sail is partially full when being doused or set, then the load is concentrated on a smaller area, further increasing friction.

it also has no moving parts."

In the case of larger boats that exceed his maximum length overall for the Strong Track, Gabeler said he recommends either Harken's Battcar system or Antal's HS system. "My primary recommendation would be to stay away from any of the loose-ball systems. Captive ball bearings or the self-lubricating slides like Antal's are the way to go. My preference is Harken, first, Antal second, and the rest of the existing products are third." Gabeler said that his preferences were based on his experience on the loft floor and on board hundreds of boats. He also favored Antal and Harken because of the worldwide support, making it easier to track down parts or get support should trouble arise, he said.

Tony Peelle, the loft manager at Haarstick Sails in Rochester, N.Y., concurred with the majority of recommendations fielded from the other sailmakers. He told us, "Your options begin with plain-old standard slugs or slides. The next step up is the Allslip slide, which is larger and has shoulders, so it doesn't bind in the track."

Peelle had some interesting advice for owners of boats with external tracks. He said that although you can stick with traditional, nickel-plated bronze slides—which seem to last forever—you can switch to plastic slides for smoother operation. Like the others we consulted for this report, Peelle advocated the Tides Marine track for mid-size to larger cruisers, followed by the Antal and Harken track-and-slide systems. He pointed out that another plus for the Tides system is that you don't need to send anyone up the mast."

Regarding maintenance, Peelle said, that it is important to ensure that the track or groove is clean and free of debris. He recommended thoroughly rinsing that part of the mast with fresh water.

Tim Stodola of Doyle Sails in St. Petersburg, Fla., told *PS* that his company doesn't favor any particular equipment supplier. "We buy from all of these manufacturers," he said. "And deciding what gear to use really boils down to what the customer is doing with his boat. Does he race or cruise? Does he sail by himself? Does he go offshore, stay in protected waters, etc.? And what is his budget for this, and then what is the specific application? All those considerations have to be understood at the outset."

According to Stodola, the same systems that have been around for 10 years remain the industry standard, especially when it comes to gear for smaller boats. Stodola said his loft installs systems on a number of larger multihulls. These full-batten systems, because of the high loads, present particularly difficult challenges.

"Often times, a track system can really improve performance," said Stodola. "We recommend the Tides Marine Strong Track system for some customers, but only up to a certain size boat—around 45 feet or so. It depends upon the size of the boat and the loading on the sail. If it were a catamaran, you'd probably move to Harken or Antal track system beginning at about 40 feet or so."

Dan Elliott of Ullman Sails in Cleveland, Ohio, has been making sails since 1978. Prior to changing the mainsail luff track system, he said, he would advise our hypothetical boat owners to examine their luff track and lubricate it. "After that, make sure that your slides are clean and not scuffed or nicked so that they move up and down the track and slide easily. That's the place to start."

Elliott told us that he would absolutely recommend the Strong Track system for our hypothetical Hunter, particularly for someone on a budget. For this boat, he estimated the total investment to be less than $1,000. "You can put this system on any kind of boat, and I can't think of any reason that you wouldn't use it on almost any boat 40 feet and under," said Elliot. The only drawback to this product, Elliott said, is the fact that the Strong Track coils can be stiff to unroll and install in cold weather.

For the Bavaria, Elliott explained

Photo by Ralph Naranjo

that a boat like that was going to have a heavyweight mainsail with at least 9.3-ounce cloth, and as heavy as 11- or 12-ounce fabric, if it's built to endure. Because of the size of the sail and the anticipated loads, Elliot said he would lean toward the Harken system for the Bavaria. "I would go right to the Harken Battslide system," Elliot said. "It's expensive, but it's the best out there. It's absolutely frictionless; but for this boat, it's probably going to be in the $6,500 or $7,000 range."

Elliott says he favors Harken's system because of the way the ball-bearing cars are engineered. "The loads are equally distributed all around the bearings, and the bearings circulate so there's no point loading, and that means that the car cannot get cocked or pulled off angle. The luff will go up and down without problems."

He said that the Harken system is probably the only system he'd specify for a large cruising catamaran. He described how the large luff on the larger cats causes the battens to fan out so they are not perpendicular to the mast, putting an angular load on the car.

"That's when these Battslide cars are invaluable," Elliot said. "Even though the battens aren't perpendicular to the mast, the cars don't bind."

CONCLUSION

Among the sailmakers we interviewed, there was a clear preference for systems that offer the least complexity, the most efficient performance, and the

A Holistic Look of Luff-Slide Friction

Any effort to make setting and dousing the mainsail easier can't be limited to a narrow look at the slide and track system. All the sailmakers we spoke with pointed out that friction can have a multiple sources.

Not only do sailors need to examine the system from the halyard winch to the tack of the main for points of wear and jamming, they need to be sure the various components are working in harmony. Surprisingly, the smoothest operating systems often integrate components from different manufacturers.


1


2


3


4


5

Photos by Joe Cooper (3) and Ralph Naranjo

1. The Allslip slide made by Bainbridge is a favorite basic slide among sailmakers. According to those we spoke with, the black slides tend to hold up longer than competitors.

2. Although more slides will add friction, two close slides at the head can extend sail life by spreading the load.

3. An internal view of the popular Schaeffer batten box shows how tension is adjusted.

4. For mid-sized cruisers, the slippery Antal slide rated highly in our survey.

5. The Strong Track slider matches well with the Battslide receptacle, a combination many sailmakers like.

best endurance in the marine environment. These are criteria that *PS* has long prized for any form of onboard system. Both the Tides Marine Strong Track and the Allslip slide were nearly unanimous choices as first options by our interviewees. Smaller boats would clearly lean toward the Allslip.

What's also clear is that systems with ball-bearing cars continue to suffer from a reputation for maintenance challenges despite the fact that almost every company offering these systems has successfully addressed those issues with captive ball-bearing cars.

We found it surprising is that few of our respondents mentioned mainsail track systems made by Selden, Karver, or Rutgerson, despite the fact that those products are readily available in the U.S. market. We also heard little about the Battslide system from Schaefer Marine, although its batten receptacles, if not the slides themselves, are popular among sailmakers. In addition, there are lesser-known products available that might prove to be reasonable options, including Facnor's Facslide-plus cars and the Italian-built LuffShuttle.

Though the scope of this survey didn't include connection devices, including batten receptacles where the slide or car connect to the luff of the mainsail, the majority of the sailmakers we interviewed were explicit that these are critical components in mast track systems. *PS* hasn't conducted a comprehensive assessment of that hardware subset, but our initial responses indicate a strong preference for rugged batten receptacles that allow you to adjust batten tension at the luff of the sail. We will be taking a closer look at these components in a future article.

CONTACTS

ANTAL, www.antal.com

BAINBRIDGE (ALLSLIP), www.bainbridgeint.com

FACNOR, www.facnor.com

HARKEN, www.harken.com

HOLT ALLEN, www.holt.eu

LUFFSHUTTLE, www.luffshuttle.com

METALMAST, www.rigrite.com

KARVER, www.karver-systems.com

RONSTAN, www.ronstan.us

RUTGERSON, www.rutgerson.se

SELDEN, www.seldenmast.com

TIDES MARINE, www.tidesmarine.com

SCHAEFER, www.schaefermarine.com

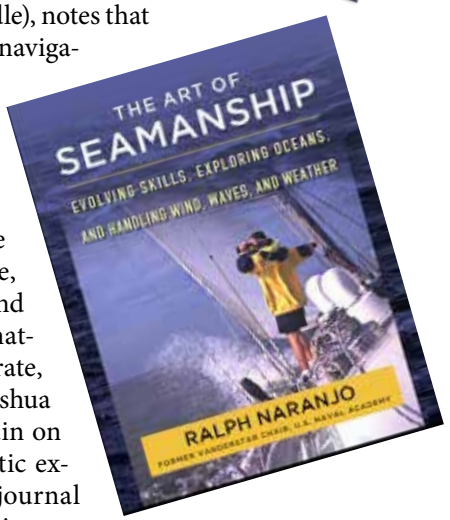
New Books for a New Year

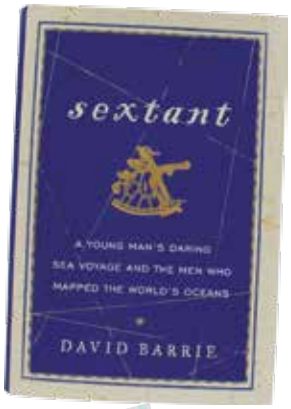
There are approximately 32,000 species of fish, including 60 to 70 species of flying fish. Although our interactions with these flying wonders may be limited to deck-clearing duties on the sunrise shift or a thwack in the face during the dog watch, renowned naturalist Steve N.G. Howell dedicated several-hundred hours perched on the bows of boats in the sweltering tropics to capture the unique images featured in the informative **"The Amazing World of Flyingfish"** (Princeton University Press, 2014, $11). With 90 color photos shot mainly in the western tropical Pacific and in the Gulf Stream near Cape Hatteras (using a Canon 20D), "Flyingfish" differentiates two-winged and four-winged flyingfish from fish that merely jump; it outlines species, habitats, and sizes, analyzes flight methods and colors, and offers tools on identifying these "butterflies on the water." Howell—author of a half-dozen books on birds, including "Hummingbirds of North America" and "A Guide to the Birds of Mexico and Northern Central America"—has been affiliated with the Point Reyes Bird Observatory for 20 years and is currently a senior birding tour leader for WINGS. Howell's "Flyingfish" also addresses the environmental challenges our oceans face and encourages readers to promote environmental awareness and protection. "Flyingfish" is a good read for information hounds and marine biology buffs.

In the introduction to *Practical Sailor* Technical Editor Ralph Naranjo's **"The Art of Seamanship: Evolving Skills, Exploring Oceans, and Handling Wind, Waves, and Weather"** (McGraw Hill/International Marine, 2014, $34), Naranjo proposes that good seamanship calls for more than the flashy, state-of-the-art science and technology found onboard many boats today. The art of seamanship involves skill acquisition, vessel preparation, and crew training, he says. Naranjo, who voyaged around the world with his family, is a racing sailor turned longtime cruiser—not to mention an adjunct lecturer at the Annapolis School of Seamanship and former Vanderstar Chair at the U.S. Naval Academy. He focuses on these key components of seamanship in his long-anticipated, 500-page resource book.

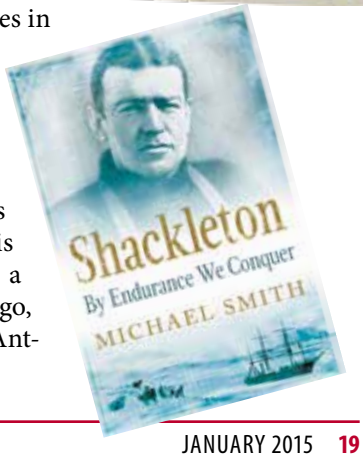
The well-organized chapters address vessel awareness and competency topics such as planning, boat handling, anchoring, sail handling, and navigation, along with the development of the psychological characteristics of good seamanship such as mental acuity, ingenuity, leadership, and the ability to deal confidently and swiftly with the unexpected. "The Art of Seamanship" is a worthy addition to any cruiser's library.

The prevalent use of GPS and electronic navigation equipment aboard ocean-going vessels threatens to turn the use of the sextant into a lost art. David Barrie, in his book **"Sextant: A Young Man's Daring Sea Voyage and the Men Who Mapped the World's Oceans"** (HarperCollins, 2014, $15, $13 Kindle), notes that although the golden age of celestial navigation has come to an end, the sextant was an indispensable navigational tool for 200 years. Barrie recounts stories of extraordinary mariners who put the sextant to use exploring and mapping the world: Captain Cook, Bougainville, La Pérouse, Vancouver, Flinders, and FitzRoy. The book includes fascinating historic accounts of the desperate, heroic voyages of William Bligh, Joshua Slocum, and Frank Worsley (captain on Ernest Shackleton's Trans-Antarctic expedition). Barrie weaves his own journal entries from his first Atlantic crossing as a wide-eyed 19 year old into the fabric of these historic voyages, creating a crisp, graceful story infused with a sense of wonder and discovery.

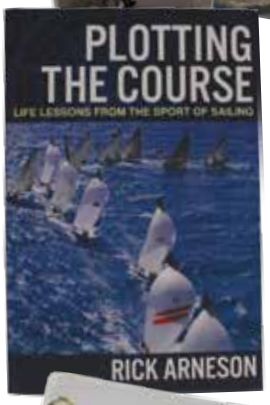


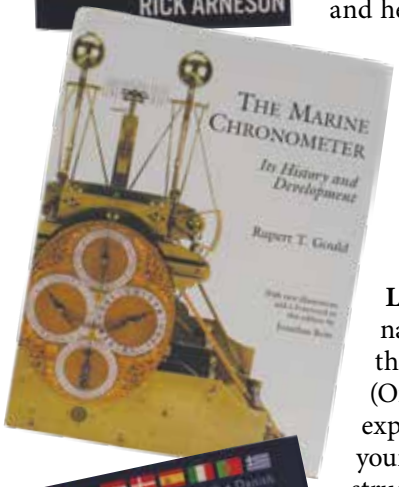


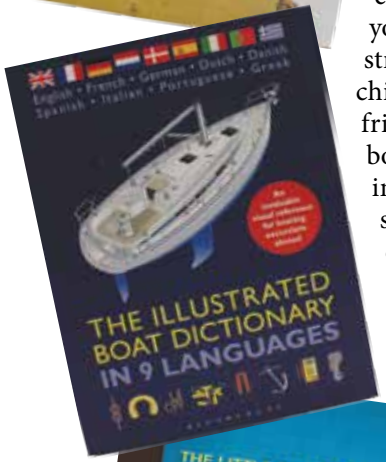
It's been 100 years since Sir Ernest Shackleton's *Endurance* set sail from Great Britain on the Imperial Trans-Antarctica Expedition, and the interest in inspiring adventurer has not waned. Dozens of books have been published, along with films, articles, and lectures focusing on the polar explorer, his leadership skills, and his courageous exploits. Michael Smith, an author and journalist who specializes in the history of polar exploration, has written the first full Ernest Shackleton biography to be released within the last 30 years. **"Shackleton: By Endurance We Conquer"** (Oneworld, October 2014, $24) draws on Smith's extensive research to bring to life this charismatic explorer who pioneered a path to the South Pole over a century ago, and who became a dominant figure in Antarctic discovery.



Some photos courtesy of manufacturers







The little ship *Victura* became part of the Kennedy family in 1932, and for five decades, it remained the brightest star in the ever-growing Kennedy fleet. Pictures of the vast Kennedy clan sailing off Hyannis Port, Mass., secured the Kennedy family brand in the media—adventurous, wholesome, vigorous, all in the same boat. In **"Victura: The Kennedy's, a Sailboat, and the Sea"** (ForeEdge, 2014, $23, $10 Kindle), author James W. Graham proposes that sailing defined the family who defined America. "*Victura*" tells the stories of Joe Jr., Jack, Bobby, and Ted, along with their sisters, wives, political offices, and children. It tacks through their glamorous successes and heartbreaking defeats, always with the sea as a background. Opening with Tennyson and closing with F. Scott Fitzgerald, Graham's poetic nod to *Victura* and the Kennedys—embracing all of Camelot's triumphs and tragedies—is a love story of life.

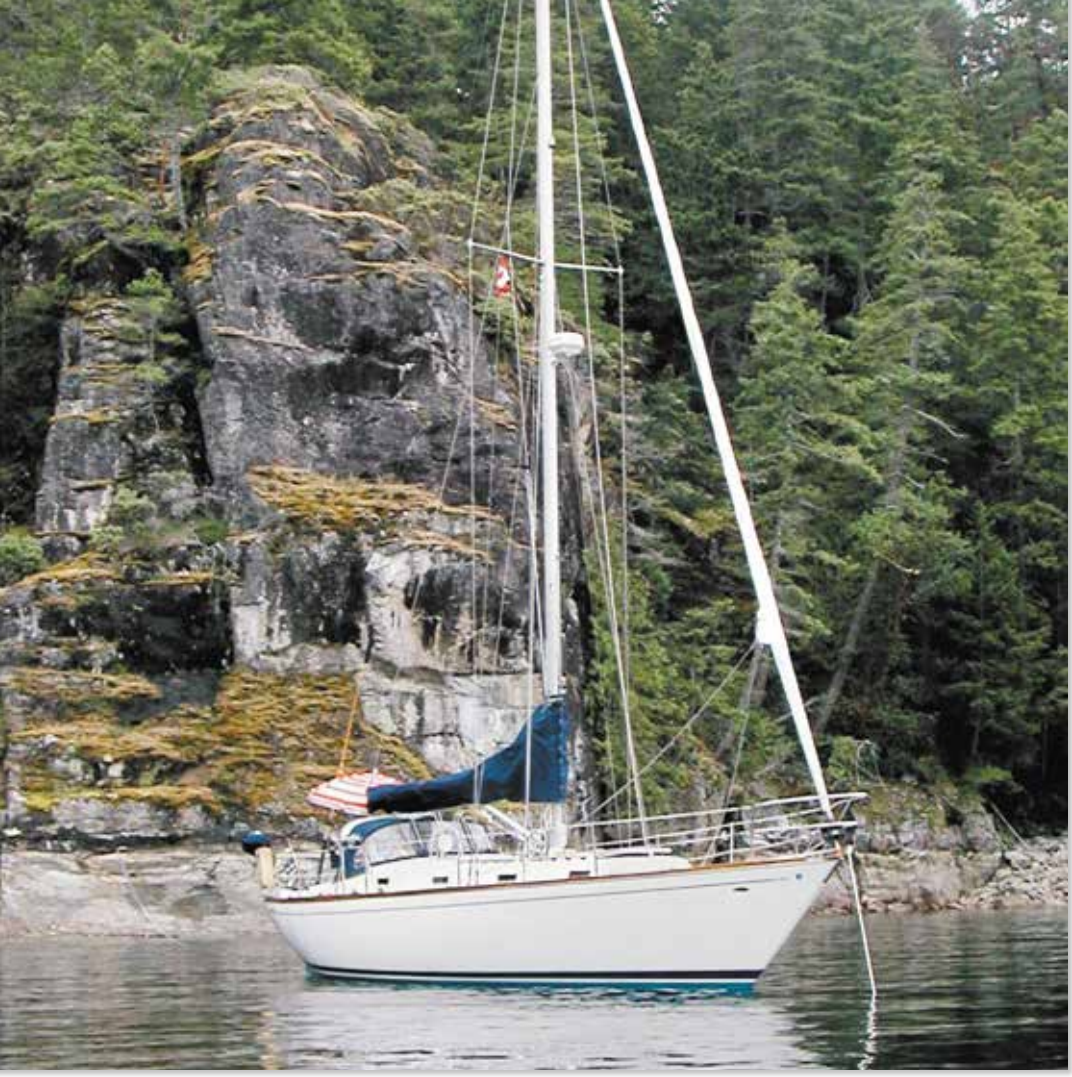
In the elegantly written **"Sea Trials: A Lone Sailor's Race Toward Home"** (International Marine, 2014, $18, $12 Kindle), author Peter J. Bourke tells of his 2009 OSTAR (Original Single-handed Trans-Atlantic Race) experience, following the sudden death of his young wife. His wife's death left him adrift as he struggled with sadness, raising his two young children, and continuing a finance career. His friends thought he was crazy to buy the Outbound 44 *Rubicon* with no formal sail training or sail experience, but Bourke found that sailing kept his life in balance. Once his children were out of high school, he entered the OSTAR. His solo sail of the Atlantic, leaving one shore behind and safely coming home again, is an uplifting story of rebirth, inspiring readers to take risks, reach for dreams, and set out for the far shore.

In **"Plotting the Course: Life Lessons from the Sport of Sailing,"** (Makai Press, 2013, $13, $9 Kindle), author Rick Arneson outlines essential lessons for personal and professional achievement, drawn from the world of competitive sailing. Chapters on inspiration, planning, performing and learning take the reader through the framework of life as if it were sailboat racing. The book includes sage and sometimes entertaining advice on such subjects as negotiating interference and obstacles; focus under stress; and the importance of knowing the game, the language, the rules, and the players.

Not for the faint of heart—but not to be missed by anyone with an interest in the art of navigation—**"The Marine Chronometer: Its History and Development"** (The Antique Collectors' Club, 2013, $115), written by Ruppert T. Gould, is a 500-page second edition to Gould's original tome published in 1923. This is the seminal text on the development of the marine chronometer, comprehensively outlining the earliest attempts to measure longitude. The book includes Gould's annotations, sketches, and manuscript notes on the original text with an updated second edition in mind. It features 65 images from Gould's collection of chronometers. Better suited for armchair reading than onboard entertainment due to its size and weight, this impressive volume of information is a rare find and a true gem.

If your travels take you to distance lands and boatyards far from the safety of the English language, never fear: **"The Illustrated Boat Dictionary in 9 Languages"** (Adlard Coles Nautical, 2014, $25, $19 Kindle) can guide you and your new deckhand through the seas of translation. Diagrammed, color illustrations of race courses, running rigging, points of sail, and ships' systems make the switch from English to French, German, Dutch, Danish, Spanish, Italian, Portuguese, and Greek as easy as *naviguer sous le vent*. This lightweight book would make a nice addition to the ship's library for anyone traveling to foreign shores.

"Any damn fool can circumnavigate the world sober. It takes a really good sailor to do it drunk," Sir Francis Chichester is quoted as saying in **"The Little Blue Book of Sailing Wisdom"** (Skyhorse Publishing, 2014, $12, $10 Kindle), edited by Stephen Brennan. This small collection of quotes includes quips on the sea, sailors, ships, wind, weather, and the philosophical nautical mind, with gems like Chichester's and quotes from the likes of Hemmingway, Shakespeare, John Mayesfield, and Jack Kerouac. Whether you browse through the history, romance, nature, and lore from your tropical cockpit, or consume the mystery, romance, travel-log, and love poems from your armchair waiting for spring's thaw, Skyhorse's inspirational collection will certainly remind you of your call to the sea.



Many Tartan 37 owners have upgraded the anchor-handling equipment to accomodate at least one large anchor for cruising.

Photos by Tom Wells

Timeless Tartan 37

Performance, quality set this boat apart.

The Tartan 37 is a moderately high performance, shoal-draft cruiser built between 1967 and 1988 by Tartan Marine, a company that helped usher in the fiberglass era under Charlie Britton in the 1960s. At the time of the Tartan 37's introduction, the company had its headquarters in Grand River, Ohio, and a factory in Hamlet, N.C.

The company merged with troubled C&C in 1997 (and shed the brand in 2013), and like many builders, Tartan struggled financially after the dot-com bubble burst. In 2010, the company was pared down to just a handful of employees and was purchased by Steve Malbasa, who worked in the retirement investment field for 32 years. Malbasa has publicly expressed high aspirations for the Tartan, but it is unlikely to recapture the manufacturing success it had during the era of the Tartan 37. The Tartan 37 reviewed here is not to be confused with the Tim Jackett-designed 37-footers that followed.

Over the years, Tartan specialized in the production of well-finished boats geared toward the upper-income cruising sailor. Most of these early boats were Sparkman & Stephens (S&S) designs, and many were keel-centerboarders.

With their S&S designs and high-quality joinerwork, Tartans were regarded as a more affordable alternative to lines of boats such as the expensive Nautor Swans. By 1987, almost 500 Tartan 37s had been built, and the demand for the boat has continued to be strong. The longevity of the 37 in production is a remarkable testament to the inherent quality of both its design and its construction.

Until the early 1980s, most of the 37s were ordered with the original keel-centerboard configuration and only a few with a deep fin keel, often combined with a tall-rig favored by racers. In the 1980s, Tartan became a fan of the Scheel keel, a shoal-keel configuration designed by Henry Scheel that predated the era of winged keels. By enlarging the bottom of the keel with an end-plate, the Scheel keel helps to improve lift and to keep the weight of ballast low, in part at least overcoming two of the noted drawbacks of shoal keels. By 1985, the 37 was available with all three keel shapes. All of the designs offered good balance and favorable performance, but those wanting to eek out longer daily runs would gravitate toward the fin keel/tall-rig combination.

Tartan-built boats have been proven to have exceptionally good value over the years. On the used-boat market, they are among the most sought-after boats and have tended to maintain their owners' equity. At the same time, new Tartans have never been "cheap." Over the years the Tartan 37 was built, its base price almost doubled, reaching $100,000. Fully equipped, its price had risen to over $120,000 by 1987. Since then, prices on older boats have steadily declined, but today, even 30-year-old 37s are commanding over $50,000 as used boats.

Developed before builders strove to pack small apartments into the sterns of mid-sized cruisers, the Tartan 37 has attractive proportions. It has a gentle sheer and a straight raked stem profile, with moderate overhangs at both bow and stem. Underwater, the boat has a fairly long, low-aspect-ratio fin keel, and a high-aspect rudder faired into the hull with a substantial skeg. Freeboard is moderate. The boat is balanced and pleasant in appearance. It is not a character boat, but is attractive, fairly racy, and functional—a typical Sparkman & Stephens design of this era.

CONSTRUCTION

The Tartan 37 is a well-built boat for its time. Tartan made use of both uni-

The forward cabin (above, left) includes a hanging locker and drawers and a filler cushion to make a snug double. Access to the anchor locker is through a louvered door forward. In early hulls, the main cabin (above) offered a pilot berth to starboard, affording extra crew—or a child—a place to grab some sleep during a race or long passage. Later hulls used this space for storage. The dining table folds up against the main bulkhead. The U-shaped galley (left) is compact but offers all the amenities that a cook could need. Most of the food lockers are outboard, requiring the cook to reach across the stove.

directional roving and balsa coring in stress areas. This yields a stiff, fairly light hull that is less likely to oil-can than the relatively thin solid layup used in many production boats. Some roving print-through—in which the fibers are visible through the gelcoat—is evident. There are also some visible hard spots on the outside of the hull.

Gelcoat quality is very good, but years of sun exposure and polishing might have taken their toll. Many of the older boats have been painted. The rudder is faired into the skeg with flaps to minimize turbulence. All through-hull fittings are recessed flush with the hull skin. For a cruising boat, remarkable attention was given to reducing skin friction and improving water flow.

Tartan's construction was strong for the period, although as with any boat of this vintage, used 37s deserve close inspection. One area worth examining closely is the hull-to-deck joint, which is stiffened with an aluminum plate. This plate, which was glassed to the underside of the inward-flanged hull, was tapped to accept through bolts that bolted on the deck. The wide internal hull flange is bedded with butyl tape and polysulphide, the deck dropped on, and then bolted on with stainless-steel bolts which also hold on the teak toerail.

The aluminum plate (instead of multiple nuts and washers) expedited construction, but the combination of two dissimilar metals introduced the potential for galvanic corrosion, which could cause the bolts to strip out, or at the very least, loosen with pounding and flexing. Although this hull-deck joint is not known for failures, a prospective buyer should check it closely.

We've noted that the toerail in many hulls is not well bedded. On the boat we tested, we were able to easily insert a thick knife blade under the toerail in several areas near the bow where the rail is subject to the most twist. Water will lie in this joint if it is at all open, making it difficult to keep varnish on the toerail.

Most deck hardware is backed with thick aluminum plates, which again raises the specter of galvanic corrosion. Closely check older boats for signs that water may have penetrated and caused the plates to swell or corrode. Pulpits are through-bolted with backing plates. The hull-to-deck joint is through-bolted across the transom, a good practice—uncommon for boats of this era, and even today. Interior construction finish is some of the best we have seen. Fillet bonding is exceptionally neat and clean. There are no raw fiberglass edges visible anywhere in the hull.

To keep the interior of the boat neat, the centerboard pennant comes up on deck through the center of the mast. This necessitates a complex mast step with transverse floors and a massive beam under the mast step to absorb compression, adding unnecessary complexity and making servicing the centerboard assembly more difficult and expensive than other, simpler arrangements.

Tartan uses bronze ball valves on through-hull fittings below the waterline. Exhaust line, cockpit scuppers, and bilge pump outlets are above the waterline, and have no shutoffs. The cockpit scuppers, which would be submerged while the boat is underway should have provision for shutoff.

PROS

- Inboard shrouds allow for tight sheeting angles on the jib.
- Molded cockpit coaming easily accepts dodger and bimini top.
- Plenty of handholds for moving forward on deck.
- Good ventilation with hatches, fans, and dorade vents.
- Well-balanced helm, responsive peformance.

CONS

- Lack of proper propane locker.
- Low companionway.
- Crew must squeeze past shrouds when moving forward.
- Teak cockpit seats add to maintenance.

PERFORMANCE UNDER SAIL

Owners report that the Tartan 37 is a well-mannered boat under sail. The boat will not perform at the grand-prix level, but it is no laggard, either. Several Tartan 37s have participated in the Marion/Newport-Bermuda race and regularly performed respectably. Although some early boats destined primarily for racers were purchased without roller furling headsails, nearly all the boats on the market today have furlers. Almost inevitably, there will be some sacrifice in windward performance with roller-furling headsails.

The optional inboard genoa track should be considered essential to those concerned with optimum windward performance. Coupled with the standard outboard track, this will allow versatility in sheeting angles. Headsail winches are within reach of the helmsman. This feature is vital for short-handed cruising and can help make the difference between a boat that is easy for two people to handle and one that is difficult. However, no real provision has been made for the installation of secondary headsail winches, should you wish to carry staysails. Small winches could be mounted on the cockpit coamings forward, but they could interfere with the installation of a dodger.

With good sails, the performance of the Tartan 37 will not be disappointing on any point of sail. Tartan brochures show the 37 happily romping along on a beam reach in a 15-knot breeze. We suspect that under those conditions, its owner is likely to be as happy as any sailor afloat.

HANDLING UNDER POWER

The standard Universal 40 auxiliary diesel engine is more than adequate power for the Tartan 37. The tendency in many production boats today is toward smaller, lighter, lower-powered diesels, the opposite of the past American boatbuilding practice, which, like our automobiles, tended toward excessive horsepower.

The engine box of the Tartan 37 was only partially insulated, although many owners have since added their own insulation. You can easily access the front end of the engine by removing the companionway ladder.

ON DECK

With wide decks, inboard chainplates, and a relatively narrow cabin trunk, fore and aft movement on the deck of the Tartan 37 is relatively easy. It would be easier if the lifeline stanchions had been positioned further outboard, rather than about three inches inboard of the toerail. There are bow chocks; and two well-mounted cleats forward. However, a line led through the chocks to the cleats bears against the bow pulpit. Shifting the cleats further inboard would provide a better lead.

Unlike most contemporary boats, there is no foredeck anchor well. This means that in order for an anchor to be readily available, it must be stowed in chocks on deck, or on an owner-installed bow roller. Then, you must face the problem of feeding the anchor rode below, more difficult for nylon rode than for chain. Molded foredeck anchor wells are becoming almost universal in modern boats, and while they make sense for the casual sailor, having one less deck hatch has its advantages on an oceangoing boat that may be burying its bow for days on end. In other words, not having an anchor locker accessible from the deck is not such a drawback as it may at first seem—particularly if long-range cruising is part of the plan.

There are strong, well-mounted teak grabrails on top of the cabin trunk that offer a handhold almost the full length of the cabin top. The molded cockpit coaming is a common Sparkman & Stephens feature and greatly facilitates the mounting of a dodger, almost standard

Even under working sails, the Tartan 37 can foot along in a light breeze. The centerboard version has a strong following in places like the Chesapeake Bay.

equipment on any cruising boat.

The T-shaped cockpit of the Tartan 37 is comfortable for five adults while sailing. It has several unusual features. Rather than the usual unyielding fiberglass, there are teak duckboards on all cockpit seats. This means that you won't sit in a puddle when it rains, or when heavy spray comes aboard. These duckboards are comfortable, but they are held in place only by wooden cleats, with the exception of the starboard seat. A more secure arrangement should be provided for offshore sailing.

There is a teak-grated cockpit sump under the helmsman's feet. This shifts the cockpit drains inboard from the edge of the cockpit. The result is that a puddle can collect in the leeward corner of the cockpit when the boat is heeling in a blow with heavy spray coming aboard.

Access to the steering gear is via the lazarette hatch. There is good provision for an emergency tiller, but the lazarette hatch must be held open in some way to use the emergency steering. There is a drop-in shelf in the lazarette which allows using the locker with less risk of damage to the steering system, but we would be reluctant to store anything small there that might possibly jam in the steering gear.

With a low cabin trunk, visibility from the helm is excellent. Racing helmsman who plan to spend prolonged spells actively steering may provide a contoured seat, but in this era of auto-helming, a flat bench is just as functional. The relatively wide, flat top of the cockpit coaming provides reasonably comfortable seating for the helmsman who prefers to sit well to leeward or well to windward.

The main companionway is narrow and almost parallel-sided, features we like, but the bridgedeck is much lower than we prefer for offshore sailing. This low sill facilitates passage of the crew below. Unfortunately, it also makes it easier for water to get below should the cockpit flood. Coupled with the thin plywood dropboards, we feel this is a potential weakness in watertight integrity, and something that should be addressed in a boat that is intended for offshore work. Several companies today specialize in producing bullet-proof companionway arrangements that can be customized to fit almost any boat.

BELOWDECKS

Due to an abundance of teak and teak plywood, the interior of the Tartan 37 is dark and cave-like. This is much the same criticism we have made of other well-finished boats. Mind you, it's a rather elegant cave, with excellent joinerwork throughout. Somehow, boat designers and builders have convinced most of the consuming public that teak is the only wood to use belowdecks. The fact is that there are many wonderful woods—ash and butternut, for example—that yield interiors that are lighter in both weight and color than teak.

The forward cabin of the Tartan 37 is truly comfortable for a boat of this size, with drawers, hanging lockers, separate access to the head, and enough room to dress in relative comfort. The completely louvered door separating the forward cabin from the main cabin looks nice, and does assist in ventilating the forward cabin. It limits privacy, however, and one good blow from a crew member caught off balance in a seaway would probably reduce it to a pile of teak kindling.

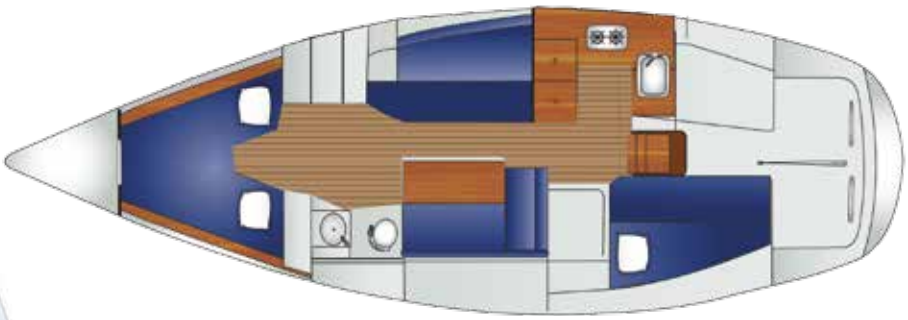
The head is quite comfortable, and it is possible to brace yourself adequately for use offshore. The shower drains into a separate sump, not into the bilge. The layout of the main cabin is conventional, with settee and pilot berth to starboard, dinette to port. The original design had a pilot berth to starboard necessitating a complex chainplate arrangement as well as a berth of dubious comfort and convenience.

By 1986, the pilot berth was eliminated in favor of shelves and gone, too, was the need for the cantilevered chainplate support. While there is excellent storage space in the galley, one must reach across the stove to reach many of the cupboards, and it's a long reach for a short person.

The stove is securely mounted and has a grab bar across its well to protect the cook, but this grab bar also inhibits the stove's gimballing function. There is no on-deck provision for storage for propane bottles, should you wish to use propane rather than the standard alcohol stove. There is room for CNG bottles to be stowed in the starboard cockpit locker, but CNG fill stations are few and far between in some areas.

The icebox appears to be well insulated on the sides, but why Tartan, like many other builders, failed to insulate and carefully fit the tops of their iceboxes totally escapes us. Although many contemporary builders have addressed this problem, we have found this shortcoming on a variety of boats, from the cheapest to the most expensive of this era.

The Tartan 37 has a large, well-designed navigation station. The quarterberth above it converts to a double berth. Ventilation is excellent, with eight opening ports and three hatches. There are also four vent/fans for the belowdecks—two exhaust type and two low, plastic cowls in dorade boxes. We think four taller cowls in the dorades would



Illustrations by Regina Gallant

The Tartan 37 has a functional layout (above, right). The centerboard combined with a long fin keel and skeg rudder, provides a well-balanced helm (above). Performance numbers put the Tartan 37 somewhere between the heft of George Hinterhoeller's Landfall 38 and Gary Hoyt's relatively sporty Freedom 36.

TARTAN 37 IN CONTEXT

	TARTAN 37	NIAGARA 35	LANDFALL 38	FREEDOM 36
LOA	37′ 4″	35′ 1″	37′ 6″	36′ 5″
LWL	28′ 6″	26′ 8″	30′ 2″	30′ 7″
BEAM	11′ 8″	11′ 5″	12′	12′ 6″
DRAFT	4′ 2″/ 7′ 8″	5′ 2″	5′	6′
DISPLACEMENT	15,500 lbs.	14,000 lbs.	16, 700 lbs.	14,370 lbs.
BALLAST	7,500 lbs.	5,500 lbs.	6,500 lbs.	6,500 lbs.
SAIL AREA	625 ft.^{2}	598 ft.^{2}	625 ft.^{2}	568 ft.^{2}
ENGINE	40 hp.	35 hp.	30 hp.	27 hp.
WATER	90 gal.	80 gal.	104 gal.	65 gal.
FUEL	50 gal.	30 gal.	30 gal.	35 gal.
SA/D	16.14	16.53	15.93	15.45
D/L	298.9	329.47	271.48	224.33
PRICE *	$50,000	$50,000	$38,000	$55,000

* Average used price (varies greatly)

be more effective, or better still, the five tall cowls shown in the original plans for the boat.

The vertical deckhouse bulkhead also allows a dropboard to be left out when it rains, further improving ventilation. Despite our complaints about the darkness of the interior, joinerwork is of excellent quality throughout. The finish work on the interior of the hull can complicate access to deck hardware, and certainly does not make it easy to survey the vessel.

In traditional wooden yacht construction, structural members are often left exposed for their intrinsic beauty, as well as for ventilation and preservation. In fiberglass boats, it is rather difficult to find intrinsic beauty in the structural material. Perhaps we are better off with it all hidden—as long as we know what holds the boat together. Given the Tartan 37s long reputation for solid construction, we certainly have confidence in what holds it together.

CONCLUSIONS

The Tartan 37, like other Tartan Marine boats of this era, is a well-built, well-mannered, fast cruising boat. The length of time it was in production and the number of 37s sold attests to the success of its concept; their value on the used boat market attests to the degree to which that concept has been realized. The boat is not immune to the problems that plague boats of this age. Prospective buyers should pay particularly close attention to the cored deck, which is prone to water damage and can be very expensive to repair.

Fortunately, the boat has attracted a wide following of enthusiasts who are willing to roll-up their sleeves and tackle these issues. The owners association provides detailed assistance in solving common problems, and the boat's wide popularity there will likely always be a market for the 37, no matter how soft the sales of used boats become.

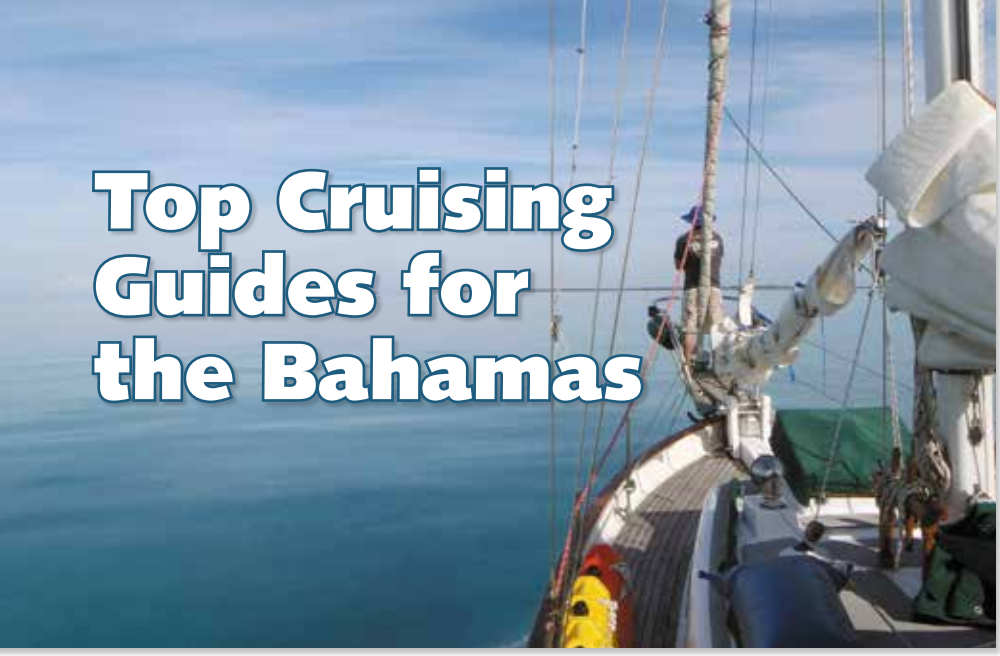
The 37 may never appreciate in the manner of some better finished (and more expensive) cruising boats such as Hinckleys that have practically become cult objects. Instead, the Tartan 37 is popular for justifiable reasons—performance, construction, and design. It is neither ostentatious nor plain. It is neither cheaply designed nor cheaply built.

Editor's note: This review is an updated and expanded version of one previously published.

RESOURCES

TARTAN 37 OWNERS ASSN., www.tartan37.com

TARTAN, www.tartanyachts.com



Top Cruising Guides for the Bahamas

Testers enjoy glassy conditions while heading into the anchorage at Great Sale Cay, Abacos.

Resources you'll want for that island cruise.

The Bahamas are often viewed as the Holy Grail of East Coast cruising due to their beauty and proximity to the Florida coast. Although they appear tantalizingly close (particularly when viewed on those nautical chart-themed placemats down at the Oyster Shack), make no mistake about it: A cruise to the Bahamas is an open-water passage that demands both attention to detail and proper safety precautions. Planning and executing a successful cruise to the Bahamas can be an extremely rewarding experience, one that provides ample opportunity to test preparedness of both boat and crew, while offering a reasonably do-able taste of bluewater cruising.

In an effort to help you live the dream, *PS* recently took a look at some of the most popular cruise-planning guides and charts covering the Bahamas.

WHAT WE TESTED

For our matchup of Bahamas cruising resources, we tested 13 products from five manufacturers. From Dozier's Waterway Guide, a trusted source of cruising information since 1947, we evaluated the "Bahamas and the Turks and Caicos Islands" (2014) guide as well as the popular Skipper Bob's "Bahamas Bound." White Sound Press sent us "The Cruising Guide to Abaco Bahamas" by Abaco legend Steve Dodge.

Richardsons' Maptech, one of the world's largest chartmakers, submitted its "Maptech ChartKit Region 9, The Bahamas to Crooked Island Passage," as well as the "Maptech Embassy Cruising Guide Florida and the Bahamas." We also tested electronic charting products from Navionics and Garmin. From Navionics, a leader in marine charting software for over 20 years, we tested the Navionics+ Plus and mobile app Navionics Boating HD; Garmin, a worldwide provider of navigation, communication and information devices and applications, was represented by its BlueChart g2 BlueChart Mobile products.

HOW WE TESTED

All products were evaluated while cruising to and in the Bahamas during the first half of 2014 aboard our test boat, a 1978 Union 36. The south-bound cruise began in the fall of 2013 as we left Norfolk, Va., and transited the Atlantic Intracoastal Waterway to Fort Lauderdale, Fla. (See our review of AICW guidebooks in the May 2014 issue online.) We crossed over to the Abacos, and ultimately based our boat at Mango's Marina in Marsh Harbour.

While there's a certain amount of cross-pollination between many of the products, for ease of reference during our comparison, we divided our test group into three broad categories:

1. General Cruising Guides: "All-in-one" guides that touch on a wide variety of information, from planning your crossing to marina and anchorage information, and even the best nightspots while in port. Resources in this category (with the exception of the black-and-white Skipper Bob book) feature full-color spreads, aerial photos, chartlets, etc.

2. Chart books: The primary focus of these publications are the charts and navigational data you'll need while cruising the Bahamas, although like the above cruising guides, they're also liberally spiced with useful, need-to know information—from general cruising info (weather, outfitting, etc.) to area abstracts, services, and local history.

3. Charts: While this was not a test of paper charts *per se*, we did look at a chartkit and a companion chart, along with digital charts. We did not delve into many NOAA print-on-demand chart options for this particular test.

GENERAL CRUISING GUIDES

DOZIER'S WATERWAY GUIDES

Touted as the only cruising guide of its kind that's updated annually, the Dozier family of Waterway Guides and publications has helped boaters get the most from their travels for over 60 years. The Waterway Guides Bahamas and the Turks and Caicos Islands 2014 edition features nearly 500 pages of navigation information, as well as aerial photography with marked routes, marina listings, and locater charts.

The "Things to Know Before You Go" section provides a wealth of pre-cruise planning data on topics ranging from medical services to flag etiquette, while the "Skipper's Handbook" section touches on equally diverse topics—provisioning, routing, entry procedures, and day-to-day living during your adventure. The guide also covers possible anchorages, and its Yellow Pages sections and "Goin' Ashore" articles provide everything from historical information to popular restaurants for each island and port of call.

Cruising grounds are divided into four sections: northern, central, southern, and the Turks and Caicos. Each section is color-coded for quick reference and clarity—a nice touch that makes

Photos by Frank Lanier

Entering and Exiting the Bahamas by Boat

When cruising the Bahamas, you'll need three flags: a yellow quarantine flag, your home country's flag, and a Bahamian courtesy flag. When nearing your port of entry, hoist the yellow quarantine flag and report to a Customs and Immigration facility as soon as possible after entering Bahamian waters.

Once docked or anchored, only the captain is allowed to go ashore to meet with Customs and Immigration to clear the vessel; all other crewmembers must stay aboard until this is completed. In addition to the ship's documentation/registration paperwork, the captain should also take passports for all persons aboard, an import permit for any pets, and information on any firearms onboard (make, model, serial number, number of rounds of ammunition, etc.). Leave all firearms on the boat; do not take them with you while clearing in.

We also recommend that you dress neatly, and always treat officials with courtesy and respect—you are a guest in their country after all. Things move at a slower pace in the islands than you may be accustomed to; expect it and don't get flustered about it. You'll find a smile and common courtesy will serve you well during the process, but a bad attitude may add to any delays. After clearing in and receiving your cruising permit, take down the yellow "Q" flag and hoist your Bahamian courtesy flag, which should remain flying during the length of your stay.

COSTS

For pleasure boats arriving in the Bahamas, the fee is $150 for those under 30 feet or $300 for boats over 30 feet. This covers the cost of the initial-entry cruising permit, plus a return visit within 90 days. It also includes a three-month fishing permit and any attendant fees payable to a Customs officer (overtime and travel costs required for the attendance of an officer). Your entry fee also pays the $20 departure tax should you need to fly home; be sure to take a copy of your cruising permit to the airport, if this is the case.

The fee covers entry for three persons. Each additional person will be charged $20; however, there is no charge for children under 6 years old. It's a good idea to verify all fees by contacting Bahamas Customs prior to departing the U.S.

EXITING BAHAMAS, ENTERING U.S.

You don't have to clear out of the Bahamas when heading back to the good ole US of A, but you do have to clear in with U.S. Customs and Immigration. The easiest way to do this is by registering with the Small Vessel Reporting System (SVRS) (aka the "Local Boater Option") before heading over to the Bahamas. The benefit here is that you can likely clear in over the phone (if all requirements are met). U.S. vessels longer than 30 feet must also display a Customs User Fee Decal and be prepared to give the decal number when clearing back in to the U.S. This can also be purchased online and in advance of your cruise using the Decal and Transponder Online Procurement System (DTOPS).

Here are some helpful resources:

- Bahamas Customs: *www.bahamas.com/boating-enter-exit*
- Small Vessel Reporting System: *https://svrs.cbp.dhs.gov/default.aspx*
- Decal / Transponder Online Procurement System: *https://dtops.cbp.dhs.gov/boating-enter-exit*
- Small Vessel Reporting System: *https://svrs.cbp.dhs.gov/default.aspx*
- Decal / Transponder Online Procurement System: *https://dtops.cbp.dhs.gov/*

finding the right section quick and easy.

Helpful cruising data like GPS waypoints, detailed planning charts, and distance charts help cruisers travel with more safety and less stress. Also included is a skipper's notes section, Bahamas overview planning chart, and a (hopefully never needed) hurricane tracking chart. Need to find a particular marina or service? The marina listings and locator charts show locations and amenities offered.

The flexible spiral binding and heavy laminated covers (with bookmarker flaps) made the guides easier to use in the open, sometimes breezy cockpit of our test boat. While we kept them handy for quick reference at all times, we tended to use it primarily at the navigation station or seated in the cockpit at the end of the day while planning our next adventure.

Bottom line: When planning your cruise to and in the Bahamas, you'll be hard-pressed to find a more informative resource. We recommended the Dozier guide.

SKIPPER BOB

"Bahamas Bound" is one of a series of popular cruising books by the late Bob "Skipper" Reib, who with his wife Elaine cruised more than 44,000 miles while living aboard both a trawler and a sailboat. According to Elaine on the publication's website, "Bob's purpose in writing the Skipper Bob guides was to make fellow cruisers' adventures as comfortable and safe as possible. In authoring these guides, he wanted to provide others with the knowledge he gained through his years of experience. Added to that was sharing the years of experience and knowledge of other boaters that we met along the way. Bob's theory was 'If you are going to be here, you might as well pay attention.' "

Purchased by Dozier's in 2007, the Skipper Bob books' format has remained essentially the same. "Bahamas Bound" is, in essence, a step-by-step guide for planning your Bahamas adventure.

It covers a wide range of topics, including outfitting your vessel, planning the Gulf Stream crossing, and where to go and what to expect while cruising the Bahamas. Want to know how much toi-

PS VALUE GUIDE BAHAMAS SAILING GUIDES

PUBLISHER	GUIDE	AUTHOR / EDITOR	PRICE	PAGE COUNT, SIZE	UPDATES
GENERAL CRUISING GUIDE					
DOZIER'S WATERWAY GUIDE	Bahamas and the Turks and Caicos Islands (2014) ✓	Various	$80	452 pages, 8.5 x 10.5 in.	Annually
SKIPPER BOB PUBLICATIONS	Skipper Bob Bahamas Bound (Edition 11) ★	Ted Stehle	$16	92 pages, 8.5 x 11 in.	Annually
RICHARDSONS' MAPTECH	Maptech Embassy Cruising Guide: Florida and the Bahamas (Edition 4)	Various	$45	560 pages, 8.5 x 11 in.	Periodically
CHART BOOK					
WHITE SOUND PRESS	The Cruising Guide to Abaco Bahamas (2014) ✓	Steve Dodge	$25	208 pages, 8.5 x 11 in.	Annually
EXPLORER CHARTBOOK	Near Bahamas 6th Ed. ★	Explorer Chartbook	$70	75 chart pages, 12 x 17 in.	Periodically
	Exumas and Ragged Islands 6th ed. ★	Explorer Chartbook	$70	64 chart pages, 12 x 17 in.	Periodically
	Far Bahamas 5th Ed. ★	Explorer Chartbook	$70	90 chart pages, 12 x 17 in.	Periodically
CHARTS					
WHITE SOUND PRESS	Chart # AB 001 Great Abaco and Cays ✓	N/A	$20	N/A), 25 x 38 in.	Periodically
RICHARDSONS' MAPTECH	ChartKit Region 9, 7th Ed. ✓ Bahamas to Crooked Island Passage	Various	$150	84 chart pages, 22 x 17 in.	Periodically
NAVIONICS	Navionics Plus ✓ electronic charts	N/A	$180	N/A	Periodically
GARMIN	BlueChart g2 ★ electronic charts	N/A	$150	N/A	Periodically
MOBILE APPS					
NAVIONICS	Navionics Boating HD ✓	N/A	Free + chart cost	N/A	Periodically
GARMIN	Garmin BlueChart Mobile ★	N/A	Free + chart cost	N/A	Periodically

★ Best Choice ✓ Recommended $ Budget Buy

let paper you should bring or the cost of water in Marsh Harbour? Look no further; Skipper Bob covers it.

Also included is a list of marinas, with available services, as well as current long-term and transient rates. Although no charts are provided, "Bahamas Bound" does feature helpful overview sketches of the islands, cruising characteristics of both the Abacos and the Exumas, and a list of recommended cruising guides and charts along with pricing and sources.

Bottom line: A great overall source of information on planning your Bahamas cruise. We Recommend it.

MAPTECH EMBASSY

Maptech's Embassy Cruising Guides provide detailed navigational information and advice to help plan your cruise, and they serve as handy quick-reference books while you're on your way. According to the publisher, the "Florida and the Bahamas" guide we evaluated is first and foremost a Florida cruising guide. The Bahamas portion of the book (18 of its 560 pages) is a short introduction to the Islands, basic considerations for planning your cruise (the crossing, weather to expect, etc.), along with a facilities guide and general overview charts.

Bottom line: This guide is more of a teaser for Florida cruisers interested in trying out the Bahamas than a resource for cruising the islands.

WHITE SOUND PRESS

Although grouped within our general cruising guides, the truth is the White Sound Press's "The Cruising Guide to Abaco Bahamas" would be just as fitting in our chart-book category. A multipurpose guide that's updated annually by Steve Dodge and family, this 25th edition continues the tradition of promoting safe navigation and providing interesting, useful information. It includes updated charts covering Walker's Cay to Cherokee Sound, approaches and advice on cruising from Florida to Abaco, as well as general cruising advice. The magazine section includes a brief history of Abaco, articles of interest on the island, a road map, classified Abaco business directory, and tropical medical tips. This latest addition contains 76 full-color charts and tide tables for 2014.

The easy-to-read color charts, based on original hydrographic research and

PS FEATURES **BAHAMAS SAILING GUIDES**

GUIDE	WAYPOINTS	ARIAL / NAV PHOTOS	CHARTS OR CHARTLETS	MARINA LISTINGS, SERVICES, ETC.	ANCHORAGE INFO	TRIP PREP INFO	COMMENTS
GENERAL CRUISING GUIDE							
DOZIER'S WATERWAY GUIDES ✓	Yes	Yes	Yes	Yes	Yes	Yes	Covers all island chain, out islands, Turks and Caicos
SKIPPER BOB ★	No	No	No	Yes	No	Yes	Good overall planning guide
MAPTECH EMBASSY	Yes	Yes	Yes	Yes	No	Yes	Basic info on Bahamas, but geared for Florida.
CHART BOOK							
THE CRUISING GUIDE TO ABACO BAHAMAS (2014) ✓	Yes	Yes	Yes	Yes	Yes	Yes	Excellent, Abaco-specific pub.
EXPLORER CHARTBOOK NEAR BAHAMAS ★	Yes	No	Yes	Yes	Yes	Yes	7th edition (2014) now available
EXPLORER CHARTBOOK EXUMAS AND RAGGED ISLANDS ★	Yes	No	Yes	Yes	Yes	Yes	7th edition (2014) now available
EXPLORER CHARTBOOK FAR BAHAMAS ★	Yes	No	Yes	Yes	Yes	Yes	Constructed of waterproof paper.
CHARTS							
CHART # AB 001 GREAT ABACO AND CAYS ✓	Yes	No	Yes	N/A	Yes	N/A	Waterproof / No-Tear Paper Stock.
MAPTECH CHARTKIT ✓	Yes	Yes	Yes	Yes	Yes	Yes	Full size charts
NAVIONICS PLUS ✓	Yes	No	Yes	Yes	Yes	N/A	Free online chart updates for 12 months
BLUECHART G2 ★	Yes	No	Yes	Via ActiveCaptain	Yes	N/A	Features data from Explorer charts
MOBILE APPS							
NAVIONICS BOATING HD ✓	N/A	N/A	N/A	Yes	Yes	N/A	Compatible with iPhone, iPad and devices operating Windows 8.1 or higher
GARMIN BLUECHART MOBILE ★	N/A	N/A	N/A	Yes	Yes	N/A	Compatible with iPhone and iPad; provides ActiveCaptain.

★ Best Choice ✓ Recommended $ Budget Buy

40 years of local knowledge, are the only charts that show locations of submerged power lines and "do not anchor zones" in the central part of Abaco. Also included are recent color aerial photographs of all principal harbors (what cruiser doesn't love good aerial photos) and GPS waypoints, both of which help reduce the stress of entering new harbors.

We found the book to be accurate and informative. We also found the expanded coverage of approaches to Abaco—Bimini, Northern Eleuthera, and West End (our point of entry)—to be a helpful aid while planning and executing our cruise.

Bottom line: If your cruising plans include Abaco, this is one reference you'll definitely want onboard. We highly Recommend it.

CHARTBOOKS

EXPLORER CHARTBOOKS

The first "Explorer Chartbook" covered the Exumas and was produced by cruising authors Monty and Sara Lewis in 1994. Since then, the Explorer Chartbook line (Near Bahamas, Exumas and Ragged islands, Far Bahamas) have become cruising bibles of sorts and are extremely popular among Bahamas-bound sailors.

Each book provides essential instructional information for boaters, including general articles on Customs, history, weather, anchoring, use of GPS, communications, piloting and navigating, reading the water, snorkeling and dinghy safety, plus an expanded, alphabetized list of specific tips in the help menu.

The company states that the hallmark of Explorer Charts continues to be accurate and up-to-date navigational data supplied by the Lewises and their experienced research team. Their website reports that the Lewises have cruised the Bahamas every winter since the inception of the "Explorer Chartbooks" and are constantly updating the charts and Need-to-Know Info.

Printed on waterproof paper, the chartbooks are robust and conveniently sized, making them equally handy for use at the navigation station or in the

The guide books, paper charts, and chartbooks we tested included offerings from Maptech, Dozier's, White Sound Press, and Explorer Chartbooks.

cockpit. Charts are full-color and feature shoreside facilities, landmarks, roads, and elevation contours. They're also cross-referenced for ease of use and provide a combination of small- and large-scale charts (allowing you to get the big picture before planning out a detailed route). Soundings (in meters), tide tables, and compass roses (with the latest magnetic variation) are also provided.

Bottom line: If you can afford only one publication for cruising the Bahamas, these are the ones you'll want to have on board. They are the Best Choice chartbooks.

PAPER CHARTS

WHITE SOUND PRESS

Produced as a companion chart to their cruising guide to Abaco, White Sound Press's "Chart AB001 Great Abaco and Cays" is a single-sheet, two-sided chart of Great Abaco and its cays, including waypoints and suggested courses. Printed on waterproof / no-tear paper, Chart AB 001 is suitable for use above and belowdecks for planning adventures and underway.

Side 1 features Walker's Cay to Cherokee Sound; Side 2 covers Cherokee Sound to Hole-in-the-Wall and Florida to Abaco. Also portrayed are 12 inset charts of harbors and other areas of interest.

Bottom line: As advertised, Chart AB001 is a great companion to "The Cruising Guide to Abaco Bahamas" and an excellent overview of the entire Abaco cruising area. Highly recommended.

MAPTECH CHARTKIT

Maptech ChartKits are 22- by 17-inch, full-color reproductions of government and private charts. The Region 9 ChartKit, "The Bahamas to Crooked Island Passage 7th edition," that we tested features GPS datums, lat/lons, distances, color satellite photos of harbors and anchorages in popular destinations, as well as small-scale, wide-area charts and large-scale, detailed charts of harbors and approaches.

Chart grids simplify vessel positioning, and major navigation aids are identified with named GPS waypoints. Charts feature pre-plotted courses between major navigation aids but also provide the information (compass rose, scales, etc.) needed to do such calculations yourself. The Chart Page Index (inside front cover) and "Go-To" page numbers allow you to quickly and easily find the chart you want. Tables showing marine facilities and services are also provided.

Our testers used these charts when planning longer routes and for plotting vessel position during our crossing from Florida. We used the ChartKit primarily at the chart table at the navigation station. They can also be used in the cockpit, although they're a bit bulkier and not as convenient as the chartbooks. They're also not waterproof, so if your cockpit is exposed, you'll want to use a plastic chart protector. The kit we tested came with a protector, but it was pretty flimsy.

Although not inexpensive at $150, the ChartKit is much easier to manage and less expensive than purchasing all the full-sized paper charts you'll need.

Bottom line: Recommended. The chartkit is an economical and convenient size and package for paper chart coverage of the Bahamas.

ELECTRONIC CHARTS AND APPS

NAVIONICS

We installed and tested Navionics Plus charts using a Raymarine e7 multifunction display (MFD). (See *PS* July 2012 and July 2014 online for more on the e7.) We also downloaded the Navionics Boating HD mobile app to our iPad and gave it a whirl. (See *PS* May 2014 online for more on testing the Navionics products.)

Compatible with a wide range of chartplotters and MFDs, Navionics cards provide charts that are clear and easy to read, with depth contours, spot soundings, port plans, port service guides, nav aids, and more, all on a preloaded, plug-and-play memory card. For initial downloads and updates, users plug their chip into a PC/Mac, then select and download the coverage they want from the company's website.

In addition to the paper chart "feel" of Navionics Plus, testers liked the wide variety of display options such as shaded contours and features like Intelligent Clarity IC, which provides an uncluttered display for easier reading.

Quick access to tide and current information was a huge plus when planning and following our route, as was the XPlain feature, which gave us a plain-language description of navigational symbols with a click of the cursor.

We love paper charts, but not so much the time and effort required to keep them properly updated. Navionics Plus charts' "Freshest Data" lets users update their card within 12 months of purchase by adding or removing charts as many times as they wish. The update option ensures you always have the most current charts, while the ability to download only charts needed for a particular cruise ensures your display won't become bogged down processing too large a chart.

Last year, Navionics announced an expansion of its Plotter Sync app, which

Photos by xxxxx

allows owners of Raymarine WiFi-enabled MFDs to easily update charts wirelessly (without removing their Navionics Plus chip).

As for the mobile app, having the Navionics data loaded on our iPad basically created a second display. With our iPad mounted at the helm, we were able to simultaneously view both zoomed in and expanded chart displays while underway. Being able to view charts on the iPad (either down below or during dinner at the local bar) made planning the next day's adventure a breeze.

Bottom line: What sailor doesn't love the benefits of electronic charts—particularly when they can be easily updated as many times as desired for a whole year. Recommended.

GARMIN

In addition to providing information on tidal stations, currents, depth contours, and IALA symbols, Garmin's BlueChart g2 marine charts offer good transitioning between zoom levels and seamless continuity across chart boundaries.

It also features a number of customizable display features such as safety shading—which enables contour shading for all depths shallower than a user-defined safe depth, a nautical no-go zone if you will—chart view options like standard 2-D direct overhead or 3-D over-the-bow chart views for easier chart reading and orientation.

BlueChart Mobile allows you to plan and view routes on your tablet, smart phone, or iPod. Routes, waypoints, and tracks can also be wirelessly transferred to your networked chartplotter using a marine Wi-Fi adapter kit (sold separately). Once underway, the Wi-Fi adapter also lets you view real-time track data on your tablet by wirelessly sharing the GPS location from the marine network.

We loaded BlueChart Mobile on our iPad, which allowed us to interact with the chart using the radial menu to mark waypoints, establish routes, etc. We didn't test the Wi-Fi adapter, however, we were able to use our wireless-only iPad to "follow the boat" along its route by using the Bad Elf GPS Pro (see PS January 2014 online).

The biggest draws that make the Garmin BlueChart g2 and BlueChart Mobile app popular with a number of Bahamas-bound cruiser are: The charts feature data from the popular Explorer Chartbooks line, and BlueChart Mobile allows you to access data from ActiveCaptain, a Web community that provides real-time content generated by mariners. ActiveCaptain allows users to read and write reviews about marinas, shared local boating knowledge, anchorages, and hazards.

Bottom line: Electronic charts coupled with access to ActiveCaptain make the Garmin products our Best Choice for electronic cruising resources.

Hope Town Harbour, Bahamas, can get a little crowded, especially during season.

CONCLUSION

While any of the above products can help make your Bahamas cruising experience safer and more enjoyable, most sailors lack the stowage space, budget, or inclination to buy them all. Those products that brought the most useful features to the table (frequent updates, accurate information, better layout, or ease of use) stood out in our evaluation pile and were used regularly during our "there and back again" cruise to the Bahamas.

For pre-departure cruise planning and reference while in the Bahamas, Skipper Bob's "Bahamas Bound" is a great read and will satisfy dreaming armchair captains, as well as those actively planning the cruise. If your cruising plans include the Abacos, you'll also want to have "The Cruising Guide to Abaco Bahamas," along with its companion chart AB 001 onboard.

Accurate charts are the cornerstone of any successful voyage, and we like having both paper and electronic charts onboard. For long-range planning purposes and a solid look at the big picture, we found the Richardsons' Maptech ChartKit to be a great tool for navigation station, although less than ideal for use at our somewhat exposed helm.

As a day-to-day cockpit chart companion that also covers pretty much anything else you'll need during your cruise of the Bahamas, the Explore Chartbooks are viewed by many as the gold standard, and we'd have to agree.

As far as electronic charts and their associated apps, testers liked the charts, display, and features offered by both Navionics Boating HD and Garmin BlueChart Mobile. We have no problem recommending both, however, access to ActiveCaptain data and seamless compatibility with those using Explorer Chartbooks give Garmin the edge—and the Best Choice pick—in our opinion.

Testers found the annually updated information provided by Dozier's Waterway Guide to be extremely useful when planning that liberty call ashore to sample the delights a port has to offer. We highly Recommend it.

CONTACTS

DOZIER'S WATERWAY GUIDE, www.waterwayguide.com

SKIPPER BOB PUBLICATIONS, www.waterwayguide.com

RICHARDSONS' MAPTECH, www.richardsonscharts.com

NAVIONICS, www.navionics.com

WHITE SOUND PRESS, www.wspress.com

EXPLORER CHARTBOOK, www.explorercharts.com

GARMIN, www.garmin.com

Photos by David Liscio and Ralph Naranjo

ON THE HORIZON

MEN'S FOUL-WEATHER GEAR
ANCHOR TEST
EXTERIOR WOOD FINISHES
STANCHION BLOCKS

Practical Sailor™

UV Protection for Dyneema

Re-coating soft shackles' loops maximizes longevity.

In your recent review of shackles (*PS*, September 2014), you tossed in a statement about recoating the soft shackles bimonthly with a UV protectant. Why? And what part of the shackle needs treatment? If Dyneema loses its UV resistance that readily, it's news to me. Do my Dyneema lifelines need similar treatment?

Cliff Smith
Via email

PS ADVISOR

According to Equiplite, a manufacturer of some of the soft shackles we tested, it is best practice to re-coat the shackles' Dyneema loops regularly; Equiplite suggests every two months. While the Dyneema is pre-coated, refreshing the UV protection periodically will go a long way toward preventing UV degradation of the soft fibers and maximizing the life of the shackles. Equiplite also recommends rinsing the shackles thoroughly with fresh water after sailing in salt water.

Re-coating Dyneema lifelines with a protectant couldn't hurt, but we have not determined that it is necessary because they are much thicker than the soft-shackle loops, and so are less vulnerable to failure from UV damage alone. With lifelines, you also have to watch for chemical exposure and chafe.

According to multihull designer and fiber-rigging advocate John Marples, the braided Dyneema ropes are so thick, they can tolerate some abrasion or sun damage to the outer fibers as this outer layer is somewhat sacrificial and is meant to protect the inner fibers. Dyneema lifeline maker Colligo recommends using the largest-diameter line possible to account for dealing with chafe and UV damage, so you can maximize the time between lifeline replacements.

In our opinion, uncoated wire lifelines are still the better option for cruising sailors, who usually prize wire's proven durability and easy inspection over the weight savings of Dyneema lifelines. Wire lifelines can last up to 20 years, and most failures are at the terminal not with the wire. Field data for Dyneema lifelines is thin, but there are reports of rigging lasting eight years or more.

Check out our Dyneema lifeline test in the September 2012 issue online, and stay tuned for the update.

Both Equiplite (top row) and Colligo (bottom row) market soft shackles using Dyneema. Re-coating the loops with a UV protectant maximizes their longevity.

NON-MARINE DIESEL OK?

I met a long-haul truck driver who said that car/truck diesel is OK for marine diesels. I have a Yanmar diesel and have always purchased diesel fuel at a marina. Is there a difference in marine and car/truck diesel?

Glenn Dickson
Essence, Hunter 28
St. John's River, Fla.

Some marine-diesel dealers will pre-blend specific additives, such as Biobor JF (biocide) or Valvtect (biocide plus multifunction additive), with the fuel. If this is the case, the pre-blended additives—which are no different from the additives you can buy at a local chandlery—are always advertised. If the "marine" fuel is not pre-blended with additive(s), then its formula is no different than diesel sold for trucks. The only difference in buying truck diesel vs. non-blended marine diesel is the taxes you might have to pay; marine fuel does not carry road tax but might carry local taxes.