

# GOOD OLD BOAT

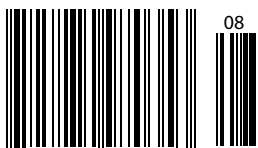
*The sailing magazine for the rest of us!*



JULY/AUGUST 2005  
ISSUE 43  
[www.goodoldboat.com](http://www.goodoldboat.com)



\$7<sup>00</sup> (Canada \$9<sup>00</sup> CDN)



7 25274 97035 3

On newsstand until August 31



July/August 2005



#### *About the cover...*

Michael Hewitt took this shot at dawn to capture the golden light on *Avocet*, his Victoria 18, at anchor in Lake Powell on the Utah-Arizona border.

# GOOD OLD BOAT



## *For the love of sailboats*

### **4 The famed Drascombe Lugger**

Beautifully restored daysailer takes to salt water

BY GEOFFREY TOYE

### **10 Bristol 29.9**

Ongoing makeover for a Halsey Herreshoff racer/cruiser

BY KAREN LARSON AND TED BREWER

### **52 The Island Packet story**

Bob Johnson both designs and builds this best-selling cruising line

BY HENRY CORDOVA

▶ Read Henry Cordova's entire interview with Bob Johnson of Island Packet Yachts at <<http://www.goodoldboat.com/IPinterview.html>>

## *Speaking seriously*

### **14 Surviving capsize**

Here's what makes a boat turn turtle — and recover

BY TED BREWER

### **18 Practical boat binoculars**

A contrarian view from a practical mariner

BY LARRY ZEITLIN

### **21 Biodiesel for sailors**

What it is and what it does for you and your engine

BY DURKEE RICHARDS

### **30 Around the world in baby steps**

Swallowing the anchor in Maine — for how long?

BY DAVE MARTIN

### **36 The case for a gallows**

It's not traditional on a catboat but it sure looks salty

BY JOHN BUTLER

### **42 Radar 101**

This proven safety feature is now practical for all sailboats

BY DON LAUNER, ILLUSTRATIONS BY TED TOLLEFSON



44



46

## Just for fun

### 29 A chart to reflect on

Do we navigate from place to place or from time to time?

BY GREG COPPA

### 39 Bingham Boat Works profile

Four generations of family expertise benefit this Lake Superior boatyard

BY KAREN LARSON

### 44 Tall ships

This issue's center spread features history afloat

BY CHIP WALLACE

### 46 The world is their kingdom

Cruising royalty Larry and Lin Pardey continue their adventures — and encourage you to have your own

BY CINDY CHRISTIAN ROGERS

### 58 Nature says when

A senior sailor undergoes a slow transition to power

BY DEAN RAFFAELLI

## What's more

### 3 The view from here

The dream field — BY JERRY POWLAS

### 62 Good old classifieds



71

### 71 Quick and easy

Extra storage — BY ED VERNER

Knife block — BY BRIAN DODDS

Concentric holes — BY JOHN SPIER

Double fenders — BY DON LAUNER

A pushpit rail — BY CRAIG CARTER

### 77 Simple solutions

Quick quillows — BY KAREN LARSON

Compression brace — BY GREGG NESTOR

### 83 Mail buoy

### 87 Last tack

Magical moments — BY KAREN LARSON

### 88 Reflections

Why my boat is not an "it"

— BY SUSAN PETERSON GATELEY



77

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43 — VOLUME 8, NUMBER 4

GOOD OLD BOAT (ISSN 1099-6354; USPS 019327)

PUBLISHED BIMONTHLY BY: Partnership for Excellence, Inc.

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Maple Grove, MN

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www.goodoldboat.com

PERIODICALS POSTAGE PAID AT OSSEO, MN 55369, AND AT ADDITIONAL MAILING OFFICES.

POSTMASTER,

SEND ADDRESS CHANGES TO: GOOD OLD BOAT  
7340 Niagara Ln. N.  
Maple Grove, MN  
55311-2655

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Editorial contributions are handled with care, but no liability is accepted. Opinions expressed by the writers are not necessarily those of Good Old Boat magazine.

SUBSCRIPTION RATES (1, 2, 3 YEARS):

U.S. AND CANADA — \$39.95/\$74.95/\$110US

OVERSEAS — \$49.95/\$95.95US



## Our contributors

**Geoffrey Toye** (*The famed Drascombe Lugger*, Page 4) lives in a beach house near Cardigan on the west coast of Wales. He's been involved with small craft for more than 40 years. A writer and journalist, he has published several books.



**Karen Larson** (*Bristol 29.9*, Page 10; *Bingham Boat Works* profile, Page 39; *Simple solutions: Quick quillows*, Page 77; *Last tack: Magical moments*, Page 87) and her husband, Jerry Powlas, founded *Good Old Boat* magazine in 1997. In an earlier life she was a journalist and public relations professional. She and Jerry have been Lake Superior cruisers since 1991, when they bought their good old C&C 30, *Mystic*. This summer they are moving *Mystic* to the North Channel of Lake Huron because Karen wanted to explore new shorelines.



**Ted Brewer** (*The Bristol 29.9*, Page 13; *Surviving capsizes*, Page 14) is a contributing editor with *Good Old Boat* and one of North America's best-known yacht designers, the man who designed scores of good old boats... the ones still sailing after all these years.



**Larry Zeitlin** (*Practical boat binoculars*, Page 18) says his professional career and personal life have been primarily focused on boats and boating. These days he and his wife, Maggie, sail the East Coast on *Puffin*, their Willard Horizon motorsailer.

**Durkee Richards** (*Biodiesel for sailors*, Page 21) had his first date with Mary Jeanne, his sail-mate, on a 15-foot 6-inch Snipe; she appears in *Simple solutions: Quick quillows*, Page 77. They spent nearly 40 years in the Midwest and cruised Lake Superior on chartered boats until they bought their J/32 in 1999. After Durkee retired, they moved to the Olympic Peninsula and are now exploring the waters of the Puget Sound and British Columbia.



**Greg Copp** (*A chart to reflect on*, Page 29) is a professional writer with expertise in the home and garden and business arenas, but he's also a long-time sailor. He's spent time on the water for more than 40 years and, now retired, enjoys cruising around New England in his Sabre 28.



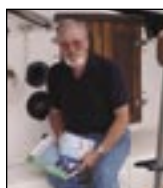
**Dave Martin** (*Around the world in baby steps*, Page 30) is a contributing editor with *Good Old Boat*. Between 1988 and 1995, Dave and his family circumnavigated aboard

a Cal 25, *Direction*. Between 1998 and 2002, they voyaged to the Arctic aboard their 33-footer, *Driver*. They are now living in Maine.



**John Butler** (*The case for a gallows*, Page 36) was a Coast Guard search and rescue pilot. He retired as a commander in 1974 and now lives with his wife, Mary Lu, on Beaver Lake in Northwest Arkansas and sails a 1963 Cape Cod Catboat whenever he gets the chance.

**Don Launer** (*Radar 101*, Page 42; *Quick and easy: Double fenders*, Page 74) is a *Good Old Boat* contributing editor. He has held a USCG captain's license for more than 20 years. He built his two-masted schooner, *Delphinus*, from a bare hull and sails it on the East Coast from his home on Barnegat Bay in New Jersey.



**Chip Wallace** (*Center spread: Tall ships*, Page 44) is a freelance TV news journalist in Los Angeles. A producer for NBC News for 20+ years, he has been sailing since age 10. He's owned or sailed on boats ranging from a West Wight Potter to a Catalina 42. Chip's 1987 Catalina 30 is his favorite good old boat.



**Cindy Christian Rogers** (*The world is their kingdom*, Page 46) is a magazine writer and editor who specializes in sailing subjects, including maritime history. Her name appears on the *Good Old Boat* masthead whenever she helps bring an issue to press. With the captain of her heart, Randy, she has sailed everything from cutters and cats to iceboats and "good old wood."



**Henry Cordova** (*The Island Packet story*, Page 52) is a geographer/cartographer who has been a sailor of the military persuasion (U.S. Naval Reserve on the USS *Dewey*) and of the recreational variety (a San Francisco Pelican and a MacGregor 22) for most of his life.



**Dean Raffaelli** (*Nature says when*, Page 58) and his wife, Charlotte, sailed *Lenore*, a Hallberg-Rassy Monsun 31, for 10 years. Dean is a native Chicagoan who began sailing at age 11 and is



a family practitioner at Michael Reese Hospital. Their new boat, a 1990 32-foot Nordic Tug, motors out of Montrose Harbor in Chicago.



**Ed Verner** (*Quick and easy: Adding extra storage*, Page 71) is a pilot, musician, writer, and sailor. He grew up on Sunfish and Hobie Cats on the waters of the Gulf of Mexico and these days cruises primarily in the Tampa Bay area. He provides occasional sunset cruises aboard *Wind Ketcher*, an Allied Seawind II ketch.

**Brian Dodds** (*Quick and easy: Knife block*, Page 72) and his partner, Judy Bloom, moved aboard their 1979 Newport 41, *Forty Two*, in July of 2004 and left Illinois for points south via the Great Lakes, Erie Canal, Hudson River, and Intracoastal Waterway. Currently cruising south Florida, they expect to cruise for several years before becoming dirt dwellers once more.



**John Spier** (*Quick and easy: Concentric holes*, Page 73) sails *Songbird*, a Kelsall 40 catamaran, with his wife, Kerri, and children, Dave, Sam, and Sally. Their home port is Block Island, Rhode Island. Last year they sailed to the Bahamas and back. This year they're refitting for a trip to Central America and beyond.



**Craig Carter** (*Quick and easy: Adding a pushpit rail*, Page 76) began boating at an early age while growing up on Long Island Sound. The family fleet consisted of rowboats, canoes, a Sunfish, and a carvel-planked runabout; Craig was tying bowlines before he could ride a bicycle. He and his wife, Carrie, currently sail their Pacific Seacraft Dana along the southern New England coast.



**Gregg Nestor** (*Simple solutions: Compression brace*, Page 80) is a contributing editor with *Good Old Boat*. More than 20 years and four boats ago, he discovered sailing and has been an avid "trailersailor" ever since. He and his wife, Joyce, sail an O'Day 222, *Splash*.

**Susan Peterson Gateley** (*Reflections: Why my boat is not an "it,"* Page 88) has written three books, *Ariel's World*, *Sweet Water*, and *Passages on Inland Water*, which feature her association with a vintage 23-foot woodie and her good old plastic 32-footer, *Titanica*.







# The dream field

*A strong invisible force dulls the brain, grabs the heart*

by Jerry Powlas

**T**HE FIRST TIME I SAW HER SHE TOOK MY breath away. She was in the end slip by the sea wall at the Oakland Boat Show. I had to walk past a lot of new boats to get to her. She was completely out of place and perhaps the more stunning for it. At first I thought she was a new fiberglass boat built from a classic schooner design. No. There were a few hints of seams between planks, even a tiny flaw in the paint job, and the bronze was a bit green in some places. But the varnish was perfect, as was the rest of her.

I had work to do, so I moved down the pier. A half-hour later I was returning, with my mind on an innovative plastic dinghy, when I looked up and there she was again. I think maybe my heart skipped a beat.

The dream field at a boat show is very strong. As it should be. This is where people come to imagine otherwise and elsewhere. Some people have the crusty look of many miles on the water; some look green and hopeful. No matter ... they all dream.

There have been a lot of boat shows where I did not go on a single new boat. I never go on very many. This time I had occasion to board a few on "working-press business," and while I was at it I had a look around.

On several boats I was struck by the large open spaces below searching desperately for a reason to exist. Most sailors will never hold a dance or play table tennis belowdecks. Still, the designer of these boats knew the reality

of his work. Boats are built to be sold. Big boats are more profitable. Big boats can be appealing because they resemble houses. Big open spaces, wine

bottles on tables, potted plants, and stemware ... stuff that does not work well in a seaway ... these things sell. Not all buyers are experienced sailors yet.

Later, I was again drawn back to the schooner *Elizabeth Muir*. I walked her decks in stocking feet, studying and imagining how she would be worked. The engineer in me was muttering in

longer, heavier boat. There were some other sailors below. They were in the same dream. Somehow all of us knew.

My editor/wife and a few others I know believe they are rational beings driven by logic. I indulge them in this. Even Einstein was not a number-crunching computer. He was a seer. He could imagine elsewhere and otherwise. He could see how it would be with great speeds and vast distances. Einstein was a sailor. The dream-field strength was high in that one.

The broker in the cockpit was a nice young woman who said that *Elizabeth Muir* had been built in 1991 to a 1930 design. There had been no refit since. She had just been well kept. Perfect.

**“Even Einstein was not a number-crunching computer. He was a seer. He could imagine elsewhere and otherwise ... Einstein was a sailor.”**

my head about how impractical it was to have so much wood and varnish to look after — something about labor-intensive — but the dreamer in me said, “Be still, I’m dreaming.” The engineer muttered on, so I locked him in his cage and went below.

These old designs had less space for their length, so it was used wisely. She was very comfortable below. Perfect. The dream was getting stronger. I’ve never sailed a boat like *Elizabeth Muir*. She might be a hard-mouthed witch with a brutal weather helm and unable to carry more than a scrap of sail without burying the cabintop portlights in the sea. I just didn’t know, so I gave her the sailing characteristics of my C&C 30, which are the best in my experience. While I was at it, I gave her a more seakindly motion as befits a

The engineer was screaming through the bars in his cell, “You can’t do this! You painted the teak handrails on your C&C 30 blue. You hate varnish work.” I didn’t give him the courtesy of an answer. I asked the lovely young woman how much the owner wanted for *Elizabeth Muir*. She said, “Boat show special, \$250,000.”

Oh. Well ... not in this lifetime could I ever own *Elizabeth Muir*. Too bad, because she already owned a piece of me. I stepped ashore, looked back, and said, “It was very nice meeting you, Elizabeth.” The dream field was very strong that day. ⚓

A handwritten signature in cursive script, reading "Jerry Powlas".



# The famed Drascombe Lugger

*Beautifully restored daysailer takes to salt water*

by Geoffrey Toye



**T**HE DRIVE FROM MY HOME IN WALES across old Somerset and Dorset had taken me through an England as one imagines it: my trusty roadster with running boards and British Racing Green coachwork entirely in keeping with a picture-postcard countryside of thatched cottages and narrow lanes. The next morning would herald an appointment with a boat, her owner, the man who had restored her, and a very restless sea.

We were to meet for the first time at Hythe, a center for yachting on an inlet off the Solent, which serves the port of Southampton. Arriving early, I took a look around. In the distance was the aging skyline of a history of maritime industry across a roadstead still busy with shipping and glistening harshly when the low sun emerged between fast-scudding clouds. The sky looked as if it might clear but the autumn wind was keen, so I waited in my car near the public boat launch where the keel of the restored Drascombe Lugger, *Guillemot*, was to take her first-ever taste of salt water.

For a small boat, conditions were somewhat daunting. The wind was strong, verging on too strong for sailing, in my opinion, a view evidently shared by several skippers who were working aboard their boats or wrapping fingers around steaming mugs at moorings they had no intention of leaving that day. Two brave souls attempted a sail but found themselves on their beam ends. One soon returned chastened. A magnificent old ketch, all 100 or more feet of her, thundered by under full plain sail, the roar of her passing carrying across the gray and forbidding Southampton water, but even her lee rail was awash.

## Current builders

When *Guillemot* arrived, newly painted and jaunty, the wind had scrubbed the clouds from an ice-blue sky. Stewart Brown appeared first. Stewart is director of Churchouse Boats Ltd., the current Drascombe builders. He introduced Joan Swindells as *Guillemot*'s owner. I asked how they felt about the sailing conditions. Stewart lifted his

nose to the near gale, pronounced it a nice breeze and weren't we lucky the sun was shining? He then began to dress the Lugger in her working rig. I was to see that his confidence was entirely justified.

The Drascombe Lugger might be a contender for best known among the traditional open daysailers designed in modern times in the United Kingdom from lines that arrived from the north with the Vikings; she has a reputation for ease of handling and sea-kindliness beyond her modest size. Her provenance also lies in another part of England rich in maritime history and a tradition of seaworthy craft: the fiercely competitive counties of Devon and Cornwall pointing westward to the turbulent Atlantic approaches off Land's End.

The Drascombe Lugger we know today is the evolved product of a team of individuals drawing upon solid practical experience, much of it military. She was designed by John Watkinson, a veteran of naval service in World War II, who completed a distinguished mili-



# “The Drascombe Lugger might be a contender for best known among the traditional open daysailers...”

tary career and left the Royal Navy in 1958.

He had married Kate, a Signals Wren, in 1954. The two set up a boat-building yard, Kelly and Hall, in Devon, but sold the yard in 1964 to sail a 13-ton ketch to the Mediterranean. This was evidently not their most enjoyable adventure; they returned to England with firm thoughts of daysailers.

## Seventh-century home

They rented an ancient Devon Long House, so called from days when people and livestock lived in the same building, each warmed by the same fire in the common wall. The place was called Drascombe Barton, a place of habitation with records to the seventh century.

It was here that John designed his famous daysailer. She would be beachable, seaworthy, safe, and pleasant to be aboard with the noise and smell of the auxiliary engine confined to a well. She would be inexpensive to own in a climate of increasing berthing and yard fees. The prototype was built and named *Katherine Mary*, after Kate. Thus began what would expand to form a theme of successful designs, crossing continents and oceans, but ever faithful to the original Drascombe concept.

The demand for Drascombe Luggers, ultimately around 2,000, would not be met by individually built timber boats. Construction in fiberglass became a natural stage of the Drascombe evolution, taken up by Honnor Marine, a respected name in British fiberglass boatbuilding.

Drascombes appeared in the United States after Harold Wilson's government levied a 25-percent tax on boats sold in the United Kingdom. This tax caused the British boatbuilding industry to look to export as an attractive avenue for sales, if not survival. Drascombe Boats Inc. was formed in Camden, Maine, later merging with the Lincoln Canoe Company to form Maine Marine Corporation. They were to build the Drascombe Lugger, Longboat, and the smaller Scaffie.

## A large family

Through the 1970s to the present, there have been other interesting Drascombe designs ranging from 16- to mid-20-feet in length. The whole

Drascombe family, of which some 5,000 boats have been built, reflects a steady theme of sensible, practical, seakindly craft of traditional lines and pleasing sheer. That theme has proved to be a consistently marketable concept, which surely reflects on the merits of paying attention to what a relatively modest, but by no means insignificant, number of discerning sailing folk actually want.

Today there is a healthy market in used Drascombes with the Lugger ever the most popular. Any used boat should be approached with caution, of course. I have examined several older fiberglass boats and noticed stress damage in the members supporting the centerboard case. Hull-centerboard case joints may give seal problems (newer models now have an integral molded centerboard case). Trailer damage is another thing to watch out for. Daysailers gather rainwater if they're not covered well and if their drain plugs are not removed or the drains are blocked. Water is heavy; check trailer chocks or other localized stress points. It freezes in winter and expands; check the hull for fairness or delamination where ice expansion has pushed the hull away from rigid members.

Water, particularly fresh water, in the bilges for long periods can cause penetration to the laminate. Older boats should be thoroughly cleaned, dried, and painted with good quality bilge paint to protect them from internal moisture ingress.

There is a vulnerability with chine forms in fiberglass in that the chine can harbor a problem derived from air trapped in the laminate during original layout. I have seen this on many craft but never yet on a Drascombe. Nonetheless, it makes sense to examine the chines for crazing or cavities.

If there are any areas of visible

wear, check for excessive stress in surrounding areas that abut non-flexing members. Check for stress at deck fittings, such as cleats. One specific Lugger problem seems to be water damage to the foot of the mizzenmast; the older models were not self-draining.

When Honnor Marine ceased producing these boats, Drascombes were subsequently built by McNulty in northeast England before Stewart Brown, who had joined forces with Churchouse, a company in Wales restoring and modifying Drascombes under warranty, took over from each company the building of new Drascombes and refitting of used boats. His company, called Churchouse Boats, is located at Whitchurch in Hampshire, England.

## Fine craftsmanship

The lovely condition of *Guillemot* is a credit to Stewart and Churchouse Boats for her restoration and to her American builders for her original fine craftsmanship. Her gleaming bronze builder's plate shows that she was built in 1981-82, by East/West Boats Inc., Kittery Point, Maine. Now also Echo Rowing, the company still flourishes, building specialized rowing craft.

David and Joan Swindells, a British couple who had moved to America in the 1970s when David worked for



**Owner Joan Swindells and Stewart Brown of Churchouse Boats, take *Guillemot*, a wooden Drascombe Lugger, for a spin in blustery conditions, facing page. Prior to her restoration, *Guillemot*, at right, shows the normal signs of neglect.**



# How seaworthy?

## An American sailed her almost around the world

On April 28, 1789, the English Captain William Bligh was cast adrift by the mutineers of the armed transport *Bounty* and famously demonstrated that ocean crossings — in his case some 3,600 miles — are feasible in open craft, but hardly to be recommended. The Drascombe Association takes a similar view of the remarkable exploits of American sailor Webb Chiles, who sailed three-quarters of the way around the world in his, a stirring example of what one *can* do with Lugger, but not perhaps what one *should* do with Lugger. Bligh, after all, did not leave the *Bounty* by choice.

Yet an open boat can have advantages. The current Luggers are unlikely to sink completely unless there is major structural damage. The military seem to have great faith in them as tools of survival. Some years ago, when Oman was in a state of unrest, Britain had a small complement of military advisors stationed there. These personnel had a fleet of Drascombe Longboats, intended for recreation, but two were kept rigged and provisioned for a major sea voyage at short notice. Had the occasion demanded, the advisors were prepared to trust those craft to sail to India and safety, some 800 miles across the Arabian Sea.

The British S.B.S., the Special Boat Squadron (whose unofficial motto is that they can do anything the S.A.S. [Special Air Service] can do, but wearing flippers... something along the lines of the U.S. Navy Seals), experimented with two Longboats as a means of covert penetration. All buoyancy was removed so the boats could be hidden by being sunk. A bonus was that if caught the S.B.S. could claim to be civilians, as surely no crack special operations unit of a modern cutting-edge navy would be mad enough to use open sailing boats.

### Ultimate conclusion

Ian Brook took one of the first Luggers to Greece and sailed around Rhodes (*A Sea Blue Boat*). David Pyle took the Drascombe concept to an ultimate conclusion and trav-

eled from Great Britain to Australia, sailing where practicable, freighting where not (*Australia the Hard Way*). Ken Duxbury's books, illustrated with his own paintings and drawings, chronicle his adventures in his Lugger *Lugworm* (*Lugworm on the Loose*, *Lugworm Homeward Bound*, and *Lugworm Island Hopping*). Australian Geoff Stewart wrote about his crossing of the Atlantic many years ago in a Drascombe Longboat (*Sail South Till the Butter Melts: Atlantic Adventures in an Open Boat*).

Peter Baxter, an active member of the Dinghy Cruising Association, trailed his wooden Lugger to Stockholm, Sweden, then spent six weeks cruising the Baltic coast to Finland and back to Stockholm. Douglas Hopwood trailed to St. Petersburg and cruised Russian and Finnish waters; and Hans Vandersmissen sailed his new Longboat from Devon, England, home to Holland. A marine journalist who has sailed his boat extensively for a quarter of a century, Vandersmissen has written what is regarded as a definitive manual of Drascombe sailing (*The Seagoing Drascombe*, later rewritten as *The Shallow Sea Drascombe*).

A seaworthy open boat should be capable, in competent hands, of meeting the conditions for which she was designed. Crew competence and stamina play a definitive role. For all but the most sheltered waters, this implies that under sail, oar, or engine she must perform steadily and dependably with sufficient overhang and flare to keep the sea, but not with so much freeboard as would constitute a liability in top-hamper. She must be equipped to deal with shipped water, even if crewmembers are cold, tired, and occupied with sailing. Her rig must be able to be reduced to a functional and balanced heavy-weather rig. The Lugger's yawl rig leaves crew with a clear space amidships to work and, if necessary, pump ship.

### Back the headsail

The Lugger has good tracking and sure tacking to spare the tired crew,

*Continued on Page 8*

Corning Glass in New York, found themselves living in an area of beautiful lakes. This was an opportunity to return to an interest in sailing that young children and work moves had inhibited. Although a fiberglass version was also available in America, David was keen on wooden Drascombes and found that Ted Perry, of East/West Boats, was building them under license at the time. Ted says they built eight Luggers and remembers *Guillemot* and her British owners with whom he subsequently became friends.

### Forgiving boat

The Swindells' new craft was to be sailed on Lake Cayuga, one of the Finger Lakes. The comings and goings of the English couple as they learned to master their new craft may have occasioned a few smiles. The boat was forgiving, an ideal craft to learn on and no slouch in a good breeze. In the hot summers she was a delightful platform for picturebook picnics or swimming in the warm water. Not so idyllic, reminisces Joan, was when the wind got up one time and *Guillemot* dragged her anchor with Joan aboard waving farewell to the swimmers.

When David retired from Corning, the couple returned to England and moved *Guillemot* with them to her new home and what was to be a time

## Resources

### East/West Custom Boats, Inc.

11 Sanborn Lane  
Eliot, ME 03903  
ewboats@comcast.net  
866-324-6769

### Churchouse Boats Ltd.

Apsley Sawmill  
Andover Road, Whitchurch  
Hampshire RG28 7SD  
Great Britain  
011-44-1256-896292  
stewart@drascombe.org.uk  
<<http://www.drascombe.org.uk>>

### Drascombe Owners of North America

<<http://www.dogona.com>>

### Drascombe Association

<<http://www.drascombe-association.org.uk>>



Following an extensive refit, Stewart Brown prepares *Guillemot* for her second major launching and first-ever saltwater sail, at left and below. The joy on the face of Joan Swindells when reunited with her boat, also at left.

of desolate sadness for Joan. Shortly after their return, in a dark and cruel event while traveling abroad, David Swindells was to lose his life. For the next eight years *Guillemot* sat on blocks in the garden of the Swindells' Oxfordshire home, until Joan resolutely determined that the boat should be restored to the craft they had once known. Stewart Brown agreed to undertake the refit.

One reason it was possible to do this was the high standard to which *Guillemot* had been built and the uncompromising quality of the materials used. Her scantling specification included mahogany marine plywood for planking, deck, and bulkheads, teak floorboards, iroko keel and bilge rubbers, galvanized steel centerboard and rudder, and Sitka spruce spars. That list reveals care in selection dictated by function.

### Good workmanship

When I saw her, her perfect plate and rudder still evidenced good original workmanship, and her planking was sound. This did not surprise me. The ply used throughout was Bruynzeel. This superb material was, I believe, the only ply warranted by Lloyd's at the time. Ted Perry recounted how he had kept an untreated piece of Bruynzeel tethered in the tide for a year. The sample discolored but showed not the smallest sign of rot or delamination. This account revealed to me how it was that a boat from a builder of his standards would endure.

Those standards were still there to see when I met *Guillemot*. There is no doubt that the restoration work was of a quality fit to honor her original build, although Stewart, in deference to Ted's

work, insisted that the restoration was only partial, none of the work required being due to deterioration of original structure but simply the natural entropy attributable to time and neglect. My guess would be that, notwithstanding their differing accents and the ocean that separates them, those two are of the same ilk.

Joan had given me some photographs of *Guillemot* before the refit. She looks somewhat lost, with her New York license numbers chipped and

“The boat was forgiving, an ideal craft to learn on and no slouch in a good breeze.”

fading in an English country garden. But, under the worst that tree and bird could deposit, she looks salvageable.

The renewed *Guillemot* is a delight to the eye. As a wooden Drascombe, she is likely to be non-standard, but she would be interesting to any Drascombe devotee and many other open sailboat enthusiasts. Her multichine hull sat securely on her road

### Through-deck trunk

The solid unit of rudder blade and stock drops into a through-deck trunk, like a daggerboard, the trunk slot reinforced at its forward end at deck level by a strong bronze keyhole plate where the stock pivots and the head rests. A 4.5-hp Evinrude outboard is shipped on a stout timber pad protruding from a dished deck, the leg passing through a keyhole well that appears to be adequately ventilated, permitting the engine to be tilted clear of the water when sailing and giving good protection

to the outboard, safe onboard access for running maintenance and controls, and a high level of security

against loss. Indeed, the motor had traveled by road in this position.

Practical features also include ring-type rowlocks refinished to a fine polish. There is also a sculling rowlock on the transom that could facilitate the use of an oar as a jury rudder for maneuvering in tight places at speeds below steerageway or for pulling the stern out of irons if caught in stays





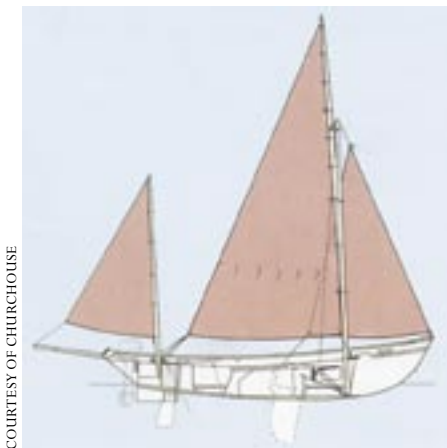
while tacking. At the foot of the main-mast she has a fife rail with bronze belaying pins to serve the halyards, not just a salty decoration but a fast way of letting the halyards run in a squall.

Her Gunter yard is fitted with substantial spliced timber jaws at the throat, with parrel line and trucks to facilitate swift lowering of the main-sail. The main, as is the case for all Drascombe Luggers, is loose-footed for convenience and safety. All spars are nicely refinished and octagonal in section. Her buoyancy has been upgraded and rigging has been modernized in line with current Drascombe philosophy. Her original Anson sails are still in good order. Elegantly-finished timber quarter knees, breasthooks, and semi-bulkheads complete a craft that is light for her type but strong.

### A dozen reasons

The best evidence of how she looks could be observed in the sheer joy on Joan's face when she saw *Guillemot* for the first time since the refit.

I have long been an admirer of the fiberglass Lugger; these are fine boats. Faced with a decision, I would choose



COURTESY OF CHURCHHOUSE

### Drascombe Lugger

**LOA:** 18 feet 9 inches  
**LWL:** 15 feet 0 inches  
**Beam:** 6 feet 3 inches  
**Draft:** 0 feet 10 inches/4 feet 0 inches (centerboard up/down)  
**Sailing weight:** 748 pounds  
**Sail area:** 132 square feet

fiberglass for a dozen sensible reasons, yet in *Guillemot* I could easily see David's preference for wood. It had taken this handcrafted timber boat to bring out the Cinderella from the prejudice of my perception and draw my eye to the swiftness of those lines. A craft I had considered beamy now seemed slim,

canoelike. For the first time I could see how she would be capable of speed.

*Guillemot*, a craft designed and finely crafted on two continents, was soon to have a chance to show us what she could do. A major advantage of her rig is that in high winds she is balanced to sail under foresail and mizzen, her mainsail snugged down, leaving the minimal windage of the short Gunter mast. I had expected to see Stewart doing just that, but he was determined to show off what *Guillemot* could do at the gallop. It was electric. This was a re-launch, a one-shot deal under tricky conditions for us all.

The trailer was backed down the ramp, tilted slightly, and *Guillemot* was afloat. Stewart took the trailer back up the ramp while Joan and I held *Guillemot* by her straining painter. There were seas breaking against her hull, but she rose to them. She bumped on the unforgiving concrete and stone of the slip, but the spring in her fine timbers absorbed it as she landed on her metal runners there for the purpose.

Stewart was back, he and Joan jumped quickly aboard, and the engine

### How seaworthy?

*Continued from Page 3*

although backing of the headsail is recommended under foresail and mizzen only. Under full sail the Lugger tacks easily; that center-sheeted mizzen is an advantage as the sheets of main and mizzen need not normally be handled.

Stability is a vexing design question. Serious ballast is out of the question on an open boat that might put her gunnel under. That leaves form stability. The boat must not be too tender or she will exhaust crewmembers who have to hike out, a practice to be avoided in a small cruising craft offshore since it cannot be sustained by those of ordinary stamina. Besides, a hole in the wind may tip a less-than-athletic sailor in backward. Form stability is the answer, but there can be too much of a good thing. An extremely form-stable craft, say, with a dead flat bottom, will stick to the surface of the water like glue.


Unfortunately, that water surface offshore may often be far from

horizontal, and the water itself can thus suddenly capsize the too-rigidly form-stable craft. This is a design factor in sea kayaks where the paddler survives a beam sea by tilting his tender craft into the face of the wave, keeping her on an even keel paradoxically by virtue of that tenderness. A conventional ballasted yacht does something similar in a way that a multihull may not.

The Lugger achieves a nice compromise with secure, usable inboard seating and nothing more than sitting to windward in a stiff breeze required of the crew. The low aspect, modest sail plan, and yawl rig assist in this. If the mainsheet is let run in a squall, the foresail and mizzen will help to protect against any sudden roll to windward by lowering the crew gently, a sort of damping, parachute effect. Although while reduced to foresail and mizzen the Lugger has a snug storm rig when needed, she possesses the facility to run up on the beach at the first sign of deteriorating conditions. Should this be done under power, her outboard is protected from inundation.

### Well-found design

Like most open boats, the Lugger can capsize or be swamped. Modern Luggers are built with more than the European Union's standard required levels of buoyancy, and the top of the centerboard case is now above designed flooded level. (On older boats it was necessary to stop up the slot before pumping out.)

On balance, the Drascombe Lugger is a proven and seaworthy open boat within the limitations defined by her type and crew. She cannot reasonably be expected to have the ultimate ability to sustain heavy weather in blue water that a well-designed and decked yacht would possess, yet so long as her integrity is maintained — and the Lugger does seem to be blessed with a well-found design — she is most unlikely actually to sink, and she may often escape heavy weather by running up the beach or into shallow inlets and harbors. How many times have the rest of us sat out heavy weather in deep water wishing we could have done just that? 

was started and put astern. *Guillemot* was clear as I scrambled to the rocky platform from which I would shoot pictures while Stewart and Joan put her through her paces.


### In open water

The mizzen was up, steadying the vessel as the outboard powered her through short seas that burst against her bows. The sails opened and the sound of the outboard ceased. A couple of short tacks, and they were in open water. Stewart gave *Guillemot* her head. She responded with spirit, dancing over the waves, even showing her keel at times, but not once did she seem overpressed, nor was she at any time other than under full command

of a man who was about as fine a small boat sailor as I have seen.

A group of hardy walkers stopped to admire her. Who could not? It took the breath away. This was a dazzling display of boathandling in a craft that showed her mettle at every evolution. She tacked handsomely, pirouetting in her own length and off onto the new board incredibly smartly, yet tracking as straight as an arrow. Stewart, determined that there should be good pictures, sailed through short breaking seas as close as he dared to the shoal waters below my rock but never touching, every time spinning that swift and sure craft back onto a course for deep water while the watchers gasped for air.

All too soon the shoot was over. I held up my crossed arms, the signal that I had used up all my film. *Guillemot* was brought up gently at the slip. Joan was glowing with pride. I was cordially invited aboard for a day trip but with some hesitation declined. I have sailed Drascombe Luggers before, though perhaps not quite so spectacularly, and this was a moment for her owner and the man who had so perfectly restored *Guillemot* and so expertly sailed her.

We waved goodbye, not for the last time I am sure, and *Guillemot* sailed away into the sunshine, a bone in her teeth as she headed for the other side of the water, a sheltered berth, and a champagne picnic. 

## What was learned

This daysailer handled very well, at least as well as others I have sailed and seen sailed, and it brought happiness to those sailing her. Stewart and Joan had a great day on the water when few ventured to sea in larger craft. This traditional boat shows a fine turn of speed and sails well on all points. The advice is to sail her on an even keel and full and by, not to pin her in as though she were a racing dinghy. The loose-footed sails draw well, including the mizzen, which is single-sheeted amidships. According to documents supplied with Luggers, the mizzen is a trimming and balancing sail, rather than a driving force. One of the few serious caveats attached to sailing these boats is that downwind in heavy conditions the mizzen can render the craft liable to broach and should be furled to the mast, a straightforward task for which that loose-footed simplicity is the answer to a prayer.

One of the problems with the Gunt-rig is getting the mainsail to set nicely without wrinkles across the sail that would disturb the air flow. The Gunter rig can be tricky initially but, once understood, is a simple rig to use. The recommended practice is to hoist the main until the halyard hitch slips into the sheave port in the mast, then get the luff tension by hauling down on the tack. It is also important to get a good luff on the foresail.

There may be a tendency, when running in moderate conditions, for a loose-footed main to belly forward inboard of the shrouds. A whisker pole to hold the clew out can resolve this. Or one may avoid a directly downwind course, steering at enough of an angle to the wind to fill the sails and then jibing occasionally, a practice usually referred to as tacking downwind.

### Reef early

As Luggers are best sailed on an even keel, one should reef early, reducing sail from forward when beating, from aft when running. The yawl rig heaves-to well. Under difficult conditions when tacking, the mizzen may be either released or baggiped, hauled aback to weather in order to force the stern around in much the same way as backing the foresail to blow the bow across. In a stiff breeze when under power, a touch of centerboard may improve control.


Small boats are sailed more frequently than big ones. One should consider the size of vessel with an intelligently minimalist rationale: not how big can one afford or manage but rather how small a boat will meet one's needs.

A critical component in this kind of sailing is the trailer. Launching and retrieving should be easy. With a poorly designed trailer, the heavier

open boat (a craft that cannot be physically carried comfortably by one or two people) could easily be the worst of both worlds. She may have to be kept on a mooring, with all the cost and associated problems, yet she cannot be lived aboard as a small yacht can. The Drascombe Lugger equipped with a good trailer is easily launched. Stewart launched *Guillemot* singlehanded, without any sign of a struggle in quick time under fairly testing conditions. The rig goes down the ramp until the trailer wheels, but not the hubs, are in the water, the cradle tilts, and in she goes. Recovery is no more difficult but involves a winch.

Short masts, easily rigged, and general lack of unnecessary complexity complete a system that inspires sailing in differing locations.

It is desirable that the boat be reasonably fast since most trips will be daysails; one would naturally want to cover enough distance to explore interesting new cruising grounds.

The Drascombe Lugger scores well in all categories, as well as in the one that just about all boat enthusiasts will understand: that she should be a craft to be proud of. Judging by the comments I heard from an admiring public, Joan could have set up an auction and made a quick sale that day in the extremely unlikely event that she were so disposed. 



**M**EMORY FAILS. MIKE AND Nancy Serozi can remember the highlights of their life together, of course. There were two sons, Reid and Brent, now 26 and 23. There were moves around the country from Connecticut to New York to California and back to Connecticut as a part of Mike's work in information systems, primarily with Xerox. Then there was a final move to North Carolina. And interspersed over the years there were boats. Almost always there were boats.

But which ones when? Mike discovered sailing with a leaky wooden Lightning. Mike and Nancy are sure of that. "I had a ball that summer," he says. Another leaky Lightning followed a bit later. A Sea Ox powerboat was in there toward the beginning. And a Catalina 25 was followed by a 21-foot Grady-White powerboat. There was a Chesapeake daysailer... more powerboats (for water-skiing when the boys were the right age for that activity)... and then more recently a 1978 Bristol 29.9.

Always their home was near a body of water. And usually there were boats. On this point Mike and Nancy agree. Absolutely. They may not have been in agreement on the purchase of some of these boats. In the Serozi family history, the story goes that Nancy had flown home to Michigan when Mike got it into his mind that they really should buy a sailboat. So without discussing it with his wife, Mike became the owner of *The Moody Blue*, a Catalina 25 in need of a new home and caretaker.

As he drove to the airport to greet his returning wife, Mike's conscience was working overtime, aided by two small voices from the back seat that pointed out, "Mom's going to kill you." She didn't, of course. Instead she was pleasantly surprised and enjoyed overnights around the Norwalk Islands of Long Island Sound.

But that was then, and this is now, or so they say. The Serozi union survived a few minor indiscretions of the boating variety.

# Bristol

*Ongoing makeover  
Herreshoff*



### Got the urge

"Two years ago, I got the urge again," Mike says with a sweeping gesture that encompasses the spacious cabin of *Wind Drift*, their Bristol 29.9. "We found a sad-looking Bristol in Oriental. It had been sitting for more than two years as a part of an estate settlement. It was structurally good. It

just needed some cosmetic work."

Oriental, North Carolina, is a lovely town on the Intracoastal Waterway, a real sailors' paradise. The Serozis, whose home is about

two and a half hours away in Cary, North Carolina, adopted a boat, a community of sailors in the Sea Harbour Yacht Club, and a small sailing-oriented town for their weekend getaways. (For more on the town of Oriental, particularly its sailors and visiting boats, visit <<http://www.towndock.net>>. The website's harbor cam is of particular interest. You can see what the weather's doing right now, or you can have a look at a shot of Hurricane Isabel, tropical storm Gustav, and other significant events archived there. Keith Smith and his wife, Melinda Penkava, co-host the site.)

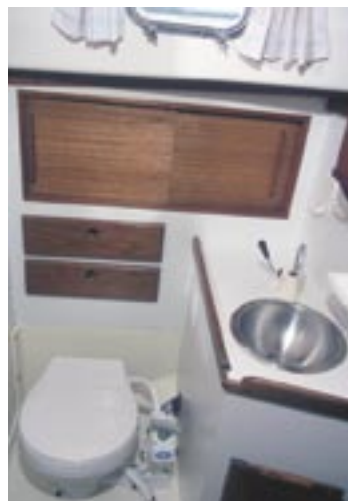
**“We found a sad-looking Bristol in Oriental. It had been sitting for more than two years as a part of an estate settlement.”**

# 29.9

## for a Halsey racer/cruiser

by Karen Larson

**Mike, Nancy, and Brent Serozi take *Wind Drift*, their Bristol 29.9, at left, for a lively trot on a breezy spring day near Oriental, North Carolina. The interior of the Bristol 29.9 has the usual lay-out with plenty of teak accents and lots of storage, at right. The Serozis had their 15-hp Yanmar overhauled and they soundproofed the engine compartment, also at right.**



In some ways, Bristol Yachts is an offspring of Pearson Yachts, founded by Clint and Everett Pearson in 1956 (see *Good Old Boat*, November 1999). After Pearson Yachts was purchased by Grumman Allied Industries in 1966 and the inevitable conflicts of founder and new owner occurred, Clint went north to Bristol, Rhode Island, and started a new boat-building operation. The earliest models were the keel-centerboard designs: Bristol 27, designed by Carl Alberg; the 35, designed by John Alden; and the 32 and 39, both designed by Ted Hood. The Bristol 29.9, drawn by Halsey Herreshoff, was introduced in 1977. More than 200 were produced before they were discontinued in 1985 or 1986. Bristol Yachts went into receivership in 1998 and the assets purchased by H. F. Lenfest. The new company, a full-services boatyard located on the site, is called Bristol Marine.

### Better cruiser

The 29.9 was designed to race under the International Offshore Rule (IOR) and Midget Ocean Racing Club (MORC) rules, but people soon realized that it made a better cruiser than racer. At 29 feet 11 inches with a 10-foot 2-inch beam and displacing 8,650 pounds with 3,600 pounds of ballast, it was called "less-than-sprightly" by *Practical Sailor*. The waterline is 24 feet, and it spreads 391 square feet of sail.

As a group, the Bristols are known for their quality construction, and the 29.9 is representative, with superior





The port bunk on the Bristol 29.9 makes into a very adequate double, above. The stove cover, above right, adds a bit more counter space when the stovetop is not in use; the Serozis replaced the old pressure alcohol burners with the Origo non-pressurized alcohol ones shown here. The sink to starboard of the companionway, at right, is not well located, but sailors for centuries have learned to adapt to unfortunate compromises made by designers.



interior construction and hull-to-deck joints. A few were built with a centerboard, offering drafts of 3 feet 6 inches (up) and 7 feet 6 inches (down), but *Wind Drift*, as with about 75 percent of the 29.9s, has a fixed keel of 4 feet 4 inches. Since the channel to the Neuse River from her slip at Sea Harbour is often silted, *Wind Drift's* shallow draft is an advantage. The day we went sailing, early in the season before dredging had been done, *Wind Drift's* keel dredged sand for 10 or 20 feet as the Yanmar 15 provided the necessary propulsion to move it to deeper water.

While briefly neglected, *Wind Drift* is prospering once more under Mike Serozi's care. He and Nancy list work they have done along with work that they have hired. They have replaced: hoses and clamps, the battery charger, the steel fuel tank, all lines, the knot meter and depth sounder, the interior cushions, steering cable, the head, the roller furler, and genoa. "We've been chipping away at it for a few years," Mike says.

They removed the original pressure alcohol stove and replaced it with an Origo non-pressurized alcohol stove, added a binnacle guard and cockpit table. They also had the Yanmar completely overhauled, cleaned, and painted, and they soundproofed the engine compartment. They added a second manual bilge pump. One of Mike's innovations is a Y-valve on the engine raw-water seacock that allows for pumping water from the bilge, a good way to get the antifreeze in the engine each winter. Mike also added a heating coil to the air in-

take for the diesel to make it start more easily. And they had the exterior teak shaved and now keep it bright.


There's always more to do, of course. This summer the chainplates and stanchions are on the to-do list as rebedding candidates.

"What really attracted us to this boat," Mike says, "was

the interior wood, the incredible amount of storage, and the reputation of Bristol Yachts. We love sailing this boat; we feel safe in it."

The cabin feels spacious, since the table folds away and is stowed on the bulkhead. The port bunk slides out to offer a fairly large double; there is a quarter berth to port with the typical navigation table at the head of the berth and a large cockpit locker to starboard. The galley is to starboard also. The head is to port across from a hanging locker.

Mike and Nancy rave about the capacity of the two connected water tanks: 63 gallons. The fuel tank holds 19 gallons, and the holding tank contains 20 gallons.

*Wind Drift* is a pretty and capable boat that Mike and Nancy Serozi are making more capable as each season passes. The plan, as they see it, is to go to the Bahamas some day. Watch for them there. 

## Resources

### Bristol 29.9 Owners

Nicholas Bauer  
nickbauer@iname.com

### Chesapeake Bristol Club

Norm Bogarde  
chessie291@netzero.net  
<<http://cbclub.info>>

### Bristol discussion list

<<http://list.sailnet.net/read/?forum=bristol>>

### Bristol owners' website

Douglas Axtell  
Bristol32@aol.com  
<<http://members.aol.com/bristolyht/>>

### Bristol Yachts

<<http://www.bristolyachts.com>>

### Bristol 29.9 Sailing Vessel Owner's Association

<<http://www.employees.org/~b299>>

# The Bristol 29.9

## A designer compares four classic coastal cruisers

by Ted Brewer

**T**HE BRISTOL 29.9 AND THREE SIMILAR YACHTS EXAMINED HERE were designed during the 1970s as coastal cruisers and club racers. I feel confident in saying that any one of the four will have given its owners much enjoyment over the years and, having raced against Catalina 30s, I will add that the serious racers amongst the skippers will have gained their share of silver.

The Bristol 29.9, with the shoalest draft and the lowest sail area/displacement ratio of the four, will prove to be the most modest of these yachts when it comes to around-the-buoy racing performance. However, it would definitely get my nod for coastal cruising and, in particular, heavy weather sailing, due to the hefty skeg-hung rudder and the strong keel-stepped mast. These are both features that I like to see on yachts intended primarily for family cruising.


The designer, Halsey Herreshoff, is very familiar with the lobster pot-choked waters of his native New England and, wisely, incorporated a propeller aperture into the generous skeg. This will eliminate a lot of the problems and the hard four-letter words that often come as the result of tangling a spade rudder or an exposed propeller in a difficult-to-see pot line. A 44-foot sloop of my

design was doing very well in its first race in Maine waters many years ago, until it picked up a lobster pot and dragged it for several miles. The owner was very unhappy, but I can just imagine the blue streak that the poor lobsterman let rip when he found his pot and its contents missing.

Looking at the figures, we can see that these boats have many similarities. All sport moderate displacement with excellent ballast ratios and generous beam. The result should be good initial stability and all-around performance. The Bristol's modest sail area puts it out of the running as a hot club racer, while the unusually deep draft of the Ericson 30+ indicates that Bruce King intended it to be a very serious contender to windward. I must add that the 30+ did have a 4-foot draft option for those who preferred gunkholing to racing, and it would be interesting to know the percentage of buyers who preferred the shoal model over the deep.

### High capsizes numbers

All of these yachts have a rather high capsize screening number as a result of their beam/displacement combination. That would tend to indicate that they are not the best choice for ocean passagemaking and would be more at home in coastal waters. Having said this, I must add that hundreds of much less seaworthy yachts, from open sailboats to

dugout canoes, have made long bluewater voyages, and many of these have survived storms, even hurricanes, that would make you think twice before going to sea again. Still, the main purpose of these four yachts is to provide comfortable family cruising and occasional racing in coastal waters. This they offer in spades. 

	Bristol 29.9	C&C 30	Catalina 30	Ericson 30+
<b>Years built</b>	1978–86	1971–83	1975–86	1979–?
<b>LOA</b>	29' 11"	30' 0"	29' 11"	30' 3"
<b>LWL</b>	24' 0"	24' 9"	25' 0"	25' 3"
<b>Beam</b>	10' 2"	10' 0"	10' 10"	10' 5"
<b>Draft</b>	4' 4"	5' 0"	5' 3"	5' 9"
<b>Displacement</b>	8,650 lb	8,000 lb	10,200 lb	8,900 lb
<b>Ballast</b>	3,600 lb	3,450 lb	4,200 lb	4,000 lb
<b>LOA/LWL ratio</b>	1.18	1.28	1.23	1.30
<b>Beam/LWL ratio</b>	0.424	0.404	0.433	0.413
<b>Displ./LWL ratio</b>	279.3	235.6	291.4	246.8
<b>Bal./Displ. ratio</b>	.416	.431	.412	.449
<b>Sail area</b>	391 sq ft	459 sq ft	505 sq ft	452 sq ft
<b>SA/Displ. ratio</b>	14.9	18.4	17.2	16.8
<b>Capsizes number</b>	1.98	2.00	2.00	2.01
<b>Comfort ratio</b>	25.3	23.4	26.8	24.3



Bristol 29.9



C&C 30



Catalina 30



Ericson 30+



# Surviving capsizes

## *Here's what makes a boat turn turtle — and recover*

by Ted Brewer

Marvin Creamer's *Globe Star* in heavy seas. *Globe Star* was capsized in mountainous seas between Tasmania and Cape Horn. Her deck-stepped mast withstood the roll.

MARVIN CREAMER

A FEW WEEKS AGO, A RELATIVELY INEXPERIENCED sailor told me he and his wife were planning to retire. They plan to do some extended cruising in their 30-foot yawl and wanted my opinion and recommendations. He was particularly interested in their yacht's ability to handle heavy weather and, of course, to avoid or survive a capsized. Those seem to be the main concerns (and for good reason) of many would-be ocean voyagers, particularly those with limited offshore experience.

To my surprise, this sailor's boat was the same Nimble 30 yawl that I had bought in 1986 and cruised in North-west waters for seven years. That allowed me to reassure him that one sister ship, at least, had crossed the big pond with no problem. She sailed to England and then returned while taking part in the Singlehanded Transatlantic Race. That does not mean that she ran into extreme weather, of course, or that the boat could not be capsized if she were caught in a real buster of a storm.

Any yacht can be capsized in the mountainous seas that build up in a great ocean storm. The two questions

that really matter are, first, how easily can she be capsized? And second, how quickly will she right herself if she is capsized?

### **The capsize angle**

The answer to the first question lies in the vessel's capsize angle, or range of positive stability (RPS), that angle from which the yacht will not right herself and will continue to roll to a 180-degree capsize once she reaches it. To deter-

**“Any yacht can be capsized in the mountainous seas that build up in a great ocean storm.”**

mine a boat's capsize angle, you need two things: the height of the vertical center of gravity (VCG) and a drawing (or computer input) of her hull and deck lines. The VCG height can be determined by an inclining test and, with that and the lines information, a yacht designer can determine the capsize angle. With computer lines this can be done quickly; with only a drawing of the lines it can be slow and tedious.

The ocean racing rules called for

a minimum RPS angle of 110 degrees, but this is considered to be on the low side by many knowledgeable sailors who usually recommend an RPS of 120 degrees or more for cruising yachts. However, the measurements that are taken to determine the RPS for an ocean racing yacht are of the hull only and do not consider the volume of the trunk cabin or deckhouse. The righting effect of a large cabin structure can be very significant but, of course, only if the ports or windows remain intact and the hatches are reasonably strong. If a hatch fails or a large cabin window shatters under the pressure of the water while the yacht is inverted, the chances of her righting are decreased dramatically, regardless of how high her RPS angle may be.

The second question, how long will she remain inverted, depends on beam and displacement to a large extent. The capsize screening factor (CSF) is a very rough guide, but nevertheless it is a guide. The number is simply the maximum beam divided by the cube root of the yacht's displacement in cubic feet. (To obtain displacement in cubic feet, divide the boat's displace-

ment, or weight, in pounds by 64.) The CSF does ignore several important factors such as the VCG, the hull draft, and the deck structure. It simply concentrates on the one obvious fact that a beamy boat of a given displacement will be happier remaining inverted than a narrow boat of identical displacement. The figure above illustrates this clearly; both shapes have identical volume and draft, but it's very easy to determine which will right itself more quickly. The purpose of the CSF number is to try to determine how long a boat will remain inverted before she is rolled back onto her feet by a "friendly sea."

### Two minutes capsized

The thinking is that the boat should not remain in the inverted position for longer than people trapped in the cockpit can hold their breath, say two minutes maximum, and that this would be the case of a yacht with an RPS of 120 degrees. In any case, the boat with a CSF number of 2.0 and lower is generally considered to be reasonably safe offshore. The lower the number, the better.

Even a 65-foot 12-Meter racing yacht, with its relatively narrow 11½-foot beam, deep 9-foot draft, and incredibly high 72 percent ballast ratio, could be capsized under certain conditions. But she would pop right back up again, not unlike a child's dumbbell clown toy, if she were rolled over by a monster sea. Incidentally, the typical 12's CSF number would be around a very, very low 1.2.

One of my own designs, the 35-foot sloop, *Globe Star*, did a 360-degree capsizing in mountainous seas after leaving Tasmania while on a west-east circumnavigation in the early 1980s. The boat has a CSF of about 1.76. Ac-



**Both shapes are one half of the same oval. It's obvious which one will remain upside down longer.**

cording to her skipper, Marvin Creamer, she was not inverted for a great length of time. Marvin had already rounded the Cape of Good Hope. He went on to round Cape Horn and arrived back in New Jersey, successfully completing an incredible circumnavigation made without any instruments or sextant. The *Globe Star* had a deck-stepped mast, and the rig was strong enough to withstand the roll. More on this feature later.

A famous capsizer was the 26-foot Sea Bird yawl, *Sea Queen*. She was skippered by John Voss, who, with two young men aboard, was caught in a typhoon in the Sea of Japan off Yokohama in the early part of the last century. His book, *The Venturesome Voyages of Captain Voss*, is well worth reading for his account of this episode. Also worthwhile is his description of his voyage from Vancouver, Canada, to London, England, in a converted Indian dugout canoe and — much more importantly for would-be ocean cruisers — his very knowledgeable dissertation on storm survival in small sailing craft. I highly recommend this book to all bluewater sailors.

### Able at sea

Most sailors think of the 30-foot Tahiti ketch as being a rather sluggish performer but a particularly able small vessel, one that can handle adverse weather conditions in her stride. I have no definite data on the Tahiti design, but these boats are of very heavy displacement, relatively narrow beam

by today's standards, and with a rather short rig. I'd estimate their CSF at about 1.55 to 1.6, based on approximately 20,000

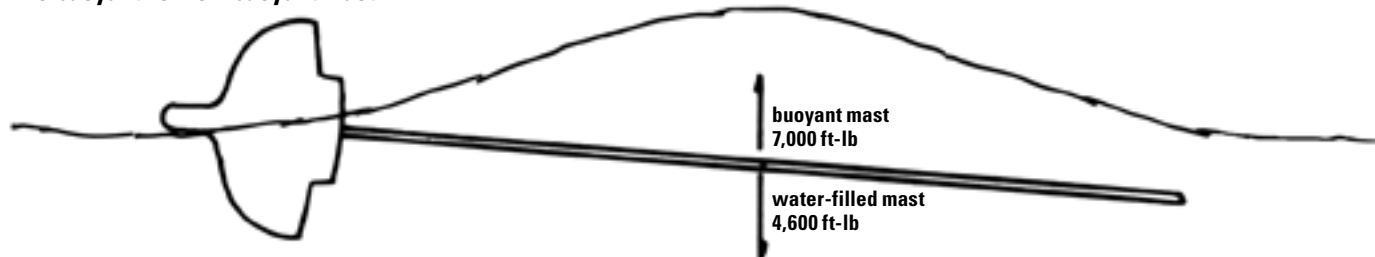
pounds displacement and 10 foot 6 inch beam. That is low for such a small boat. Nevertheless, a Tahiti turned turtle on an autumn voyage from Hawaii to Oregon in the 1980s and, although she righted herself, she did so sans masts and with her interior knee-deep in water. With her engine choked with salt water, no rig remaining, and a very inexperienced crew, she was a wallowing hulk, which resulted in a tragic death before the lone survivor was rescued by a passing freighter.

And then there is the case of *Tzu Hang*. This husky 46-foot ketch, with 11½-foot beam and 7-foot draft, owned by Miles and Beryl Smeeton, was capsized by enormous seas off the coast of Chile. She was running before the seas under bare poles, trailing several heavy lines, when an almost vertical wall of water came up astern and virtually pitchpoled her end over end. She also lost her rig, but her experienced crew — consisting of the Smeetons and John Guzzwell — set a jury rig and managed to reach Chile after a heroic struggle. Incredibly, this happened a second time, with only the Smeetons on board. *Tzu Hang* was once more enveloped by a tremendous sea, capsized, lost her rig again, and again made it safely to Chile under a jury rig. I expect it was getting to be quite tiresome.

### Particularly serious

I mentioned that the *Globe Star* did not lose her mast in her capsizing. A dismasting in wild seas can be particularly serious for a number of reasons. First, the boat has lost a great deal of weight aloft and, while you might think this is beneficial because it lowers the VCG, it

### The buoyant vs. non-buoyant mast.





# “Gaskets and solid locking catches on sail bins and hatches are necessary in extreme conditions.”

is not. Having the weight of the rig aloft greatly increases the boat's transverse moment of inertia, in other words, its resistance to the kind of snap roll that can occur when hit by another breaking sea. Second, with the mast gone, the boat loses the buoyancy of the air-filled aluminum tube and thus a very important righting moment. Third, and the least of your worries at that moment, you're now aboard a motorboat and probably a long, long way from shore.

I did a rough estimate on the mast for a 35-foot cutter and came up with some interesting figures. An oval tube about 8 inches by 5 inches with  $\frac{3}{16}$ -inch thick wall would handle the rig loads for the yacht. This tube, weighing about 4.26 pounds per foot and extending 44 feet above the cabinroof, would total close to 190 pounds, say, 210 with fittings. Each foot of the mast would contain just over 0.19 cubic feet of air and would provide 12 pounds of buoyancy, a total of 528 pounds. This, minus the spar weight, offers a net 318 pounds of buoyancy, and this buoyancy, centered 22 feet above the cabin, would provide 7,000 foot-pounds of righting moment with the boat lying on her side, knocked over to 90 or 110 degrees.

It is not a tremendous amount of righting moment, to be sure, but it certainly improves on the 4,600 foot-pounds of capsizing moment that a water-filled spar would be exerting (see illustration on Page 15). That is one reason I dislike inside halyards for offshore yachts: there are simply too many holes in the mast where water can pour in when the yacht is capsized. Of course, the difficulty of inspecting the halyards or replacing one at sea is another story yet and simply adds to my dislike.

## Heavier rig

In-the-mast furling poses an even greater problem; the whole rig is heavier, there is even less buoyancy than with a normal tube, and that buoyancy can also be lost if the mast has internal halyards. Since stability increases as the cube of the size,

large yachts can handle this kind of gear but, in my opinion, smaller yachts — especially those well under 40 feet — should have outside halyards and standard slab reefing.

I'm not even in favor of roller-furling headsails for smaller offshore yachts. They are detrimental to stability due to the added weight and windage aloft. When furled partway in a stiff breeze the headsail is not nearly as efficient as a smaller hanked-on sail, due to the bulge of the rolled cloth on the leading edge. Finally, when 100 percent furled in extreme conditions, it is impossible to lower it to change to a smaller sail or to lower the weight and windage to the deck.

Some readers know I don't particularly favor deck-stepped spars for offshore yachts either. They need to be considerably stronger than a keel-stepped mast, so the added weight required is one factor. Of course, as I already pointed out, weight aloft does increase the transverse moment of inertia, and that is not all bad. The problem with a deck-stepped mast in case of a dismasting is that it is much more difficult to set up a jury rig than it would be with a keel-stepped mast extending even a few feet above deck.

One other point to note: if the boat does have a deck-stepped mast and outside halyards, by all means plug the heel of the mast to prevent it from filling with water in case of a capsize. A foam or wooden plug or a welded aluminum cap will do the job. Of course, you can

foam fill the entire mast, whether deck-stepped or keel-stepped, but the foam for the 44-foot stick mentioned above would

add about 45 pounds of weight aloft, and this is never good. Better to use caulking to seal all the holes that would let water in and hope for the best.

## Adding stays

One thing the sloop owner can do is strengthen the rig itself by adding a staysail stay and backstays. This helps to insure that the boat will not be dismasted if the worst happens and it also provides a stay inboard of the stemhead on which to set a storm sail. Indeed, if you plan an ocean crossing, every single piece of rigging should be checked, and anything that appears remotely questionable should be replaced.

Sailors whose yachts have relatively high CSF numbers, say over 1.9, should give some thought to adding ballast as low as possible in the hull in order to increase displacement as well as to lower the center of gravity. Of course, any additional ballast must be fitted carefully, and strongly held in place by fiberglassing or other means, to ensure that it will not shift if the boat rolls over. The Tahiti ketch mentioned earlier had hundreds of pounds of loose lead pigs in her bilge that came crashing to the cabin overhead when she was capsized. Imagine how swiftly the water would rush in should one of those heavy pigs break through a hatch or skylight. Imagine how a heavy lead pig could break your bones or crush your skull if it fell on you.

Obviously, if the boat is capsized it is essential to keep as much water

out of her as you can by ensuring that sail bins, skylight, lazarette, foredeck, and companionway hatches are as tight as possible. If several tons of water get into a capsized hull through a broken hatch it will drastically alter her VCG and greatly reduce the chance of her righting herself. Gaskets and solid locking catches on sail bins and hatches are necessary in extreme conditions. As well,


## How this affects your boat

	Power to carry sail	Range of positive stability	Capsize resistance
Heavy displacement	+	+	+
Deep hull	—	+	+
High freeboard	—	+	+
Wide beam	+	—	—
Deep draft	+	+	+
Shoal draft	—	—	*
Low center of gravity	+	+	+
Moderately heavy rig	—	—	+
Ultra-light rig	+	+	—

\*Some feel that shoal draft may reduce the tendency to capsize in beam seas by allowing the hull to slide to leeward on a steep wave.

yachts with large windows should carry shutters of Lexan, aluminum, or plywood that can be fitted when dangerous seas threaten. Solid shutters should have a small window cut into them for observation. Even small portlights can shatter, so yachts should carry several interior shutters that can be quickly fitted in an emergency.

## Pros and cons

Consider the plusses and minuses of your own boat in light of the table shown on the facing page. This may all be quite scary to the neophyte, I'm sure, but seasoned sailors will know that the chances of being caught out in an extreme storm are relatively low. After all, hundreds of small sailing craft have successfully crossed oceans, from the mini 6- and 8-foot-long record breakers to open daysailers, dugout canoes, and folding kayaks, even a miniature 24-foot three-masted square-rigged ship with two men and a dog aboard. Still, it pays to insure against the worst and then pray that it never happens. 

## For further reading...

John Vigor's book, *The Seaworthy Offshore Sailboat*, takes a hard look at what could happen if your boat were to be inverted. Not a pleasant thought, but something well worth considering before you're bombarded by flying objects in the cabin or before your cockpit locker lids open to admit gallons of sea water while discarding precious possessions.



*Trekka Round the World*, by John Guzzwell, and *Once is Enough*, by Miles Smeeton, both tell the tale of *Zu Hang's* capsize, recovery, and repairs. Another useful reference is the video or



DVD, *Capsize Recoveries and Rescue Procedures*, by Wayne Horodowich. All are available at <<http://www.goodoldboat.com/bookshelf.html>> or by calling



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# Practical boat binoculars

## *A contrarian view from a practical mariner*

by Larry Zeitlin



Porro prism, at left.  
Roof prism, at right.

**L**IKE MOST BOATERS, I'VE BEEN EXposed to many ads for binoculars and come away convinced that most of what I've read has been written by copywriters who would become seasick in a bathtub. Here is a contrarian view of most of the hype. It should help you read the ads with a discerning eye. The material is based on nuggets of wisdom I scraped from the floor and walls while working for a military/aerospace consulting firm during the height of the Cold War. Most of the recommendations came from real experts in optical design and manufacturing. The only thing I can claim for my own is the two-binocular theory.

From an optical point of view, the binocular is a relatively simple instrument. It's basically a pair of matched telescopes joined together in an adjustable frame. Each telescope consists of an objective lens, a prismatic image-inverting system, and an eyepiece. Binoculars differ in light-gathering power, degree of image magnification, optical quality, and eye relief.

Boaters typically use binoculars to view buoys or harbor entrances at a long distance in a very humid environment. They want marine binoculars to be reasonably watertight and resist the knocks of bouncing around in a boat cockpit. Bird watchers, on the other hand, want binoculars with high magnification and light weight. Since the boating market is very small

compared with general sports use and birdwatching, design decisions are typically optimized for the other guys.

The basic problem in binocular manufacture is to match the optical characteristics of each telescope. The magnification of each tube must be the same, and they must be mounted parallel to each other. Modern optical manufacturing techniques can match the telescopes to within 5 percent with minimal human intervention or adjustment. For each 1 percent improvement, the cost doubles, due to the additional labor content. This explains the sharply increasing cost curve of fine optics. You can buy a minimally adequate pair of binoculars for \$30, a good set for \$200, or a really fine set for \$1,000. The trick is to select the cost level that gives sufficient quality for the task at hand. Cheaper, and the glass won't do the job; more expensive, and the liability in case of loss or damage is too great.

### **Conflicting requirements**

Material selection is critical in the marine environment, but durability and usability requirements work against each other. A marine bronze frame will last a very long time but will be too heavy to carry. Aluminum is light but relatively short-lived. Die-cast zinc disintegrates in salt air. Optical purists may disagree, but I feel that glass- or carbon-fiber-filled polycarbonate is the best structural material for a binocular



ILLUSTRATIONS BY TED TOLLESON

and also one of the cheapest materials available. A fine binocular lasts forever if it is never used. Use it in a marine environment, and it lasts just about as long as a cheap one. A practical mariner regards a pair of binoculars as an expendable tool with an indeterminate, but limited, life span. When it fails to perform, he fixes or chucks it.

Variations in binocular design are more apparent than real. They serve the marketing department more than the user. The binocular is, after all, a mature instrument, whose basic principles were established a century ago. Prism configuration is the variable that has the greatest influence on binocular shape, but in the long run, all prism systems are equivalent. All they do is erect the image formed by the objective lenses. Right-angle Porro prisms make for a short, wide binocular with the objective lenses either further apart or closer together than the eyepieces. Roof prisms produce a slimmer, longer binocular with the objectives and eyepieces in line. Fine binoculars are made in either configu-

# “Does more light-gathering ability always mean that the binocular is better or more useful? Perhaps not.”

ration. The competitive pressure of the marketplace is an inherent equalizer. Most binoculars in the same price range will perform about the same.

Binoculars are described by a pair of numbers. The first number is the magnification, the second number the diameter of the objective lens. A 6 x 30 binocular has 6 times magnification and a 30 mm-diameter objective lens. A 7 x 50 Navy binocular has a 7-power magnification and a 50-mm objective lens. The single most important factor in the cost, size, and weight of a pair of binoculars — all else being equal — is the diameter of the objective lens. The bigger the objective lens, the more light it gathers. Does more light-gathering ability always mean that the binocular is better or more useful? Perhaps not.

## More expensive

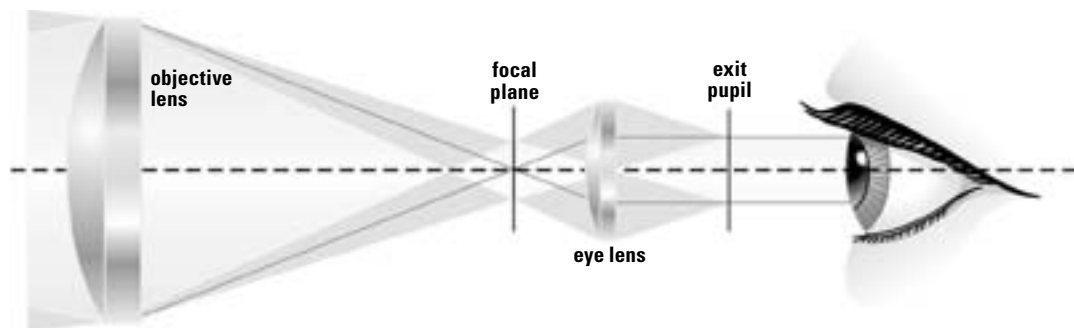
At a first approximation, the cost of an optical instrument is proportional to the area of the glass surfaces. Thus, a binocular with 50-mm objective lenses is almost always more expensive than an equal quality binocular with 25-mm objective lenses. The big objective binocular is also larger and heavier, perhaps double the weight and size of the smaller instrument.

The sole function of a large-diameter objective lens is to provide a large exit pupil. This determines how much of the light gathered by the binocular reaches the eye. The size of the exit pupil can be calculated by dividing the diameter of the objective lens in millimeters by the magnification of the binocular. A 6 x 30 binocular has a 5-mm exit pupil. A 7 x 50 binocular has an exit pupil slightly greater than 7 mm. The cone of light entering the eye is limited by the eye's own pupil; therefore, a large binocular exit pupil is of use primarily under low light conditions when the eye's pupil enlarges to its maximum diameter. Since the pupil of the average eye rarely enlarges beyond 7 mm even under the dimmest conditions, the 7-mm binocular exit pupil of the 7 x 50 binocular is the largest practical size.

This large an exit pupil is of use only in very poor light. In most dawn-to-dusk conditions, the eye's own pu-

pil is considerably smaller than 7 mm, usually only 2 to 3 mm. A binocular with a smaller exit pupil will usually suffice. Most binoculars intended for daylight use have 4- or 5-mm exit pupils. Included in this category are the 6 x 24, 6 x 30, 7 x 35, and 8 x 32 binoculars found on dealers' shelves. In 98 percent of all marine situations, they provide an image every bit as clear and bright as the Navy type 7 x 50 night glasses, yet are considerably smaller, lighter, and cheaper. Remember that an optical binocular can never provide an image that is brighter than that seen by the unaided eye.

One often-cited advantage of a large exit pupil is that it permits the eye to be poorly centered behind the binocular eyepiece. This is an advantage only when the eye is free to move with respect to the eyepiece. This is the case with a binocular mounted on a pedestal on a ship's bridge. In most normal situations, the eye centers itself behind the eyecup of the eyepiece, and there is minimal relative movement between the eye and the instrument.



## Stabilizing systems

Few boats shorter than 100 feet can be considered stable platforms. Boat motion and engine vibration make it impractical to hand hold optical instruments with greater than 8-power magnification. The shakes can be lessened by binoculars that use a stabilizing system at a \$200 to \$400 premium in price. But be warned that these go through batteries like a pig eating popcorn. For smaller boats, in any sea state other than dead calm, the absolute upper hand-held limit for an unstabilized binocular is 8-power, with 6- or 7-power preferred. When I was in

the Army many years ago, we ran tests on binocular-assisted target recognition from moving vehicles and verified

the efficacy of the Army standard-issue 6 x 30 binocular for most daylight conditions. Eyes and binoculars haven't changed much since then. Obviously, a ship is more stable than a moving tank, so the Navy standardized on 7-power for hand-held binoculars. My own peak efficiency on my roll-prone motorsailer, balancing image motion and magnification in reading buoy numbers, comes at 6-power. My wife, on the other hand, likes 7-power. We both agree that 8-power is too much.

The single factor most important to user enjoyment of a pair of binoculars is the quality of the optics. Well-made binoculars provide clear, distortion-free images over the entire field. Good alignment permits long periods of headache-free use. Unfortunately, the best optical quality costs a lot of money. Unless you are the type of person who enjoys playing with expensive toys, the best optical quality is overkill in the marine environment. Bumps, knocks, salt air, and the ever-present danger of submersion are extremely hazardous to long binocular

life. Reading buoy numbers or identifying shore features requires only that the central portion of the visual field be clear and sharp. Alignment need only be good enough to permit a few minutes of continuous use without eyestrain.

## Lessened acuity

The best optical quality is even less important if the binocular is used at night. The visual acuity of the eye decreases so dramatically under low-light conditions that optics made of old tumbler bottoms would suffice. A number of years ago, my firm designed the



prototype of the gunsight telescope for the new Army battle tank. Rather than wait for expensive optics to be hand-made, we scavenged the objective and eyepiece from a \$29 binocular straight from the shelf at Sears and discovered that they provided more than enough



**Leika**

optical quality to deal with night-visibility conditions. The final product, with optics several hundred times more expensive, did no better. It is the eye, not the binocular, that determines the resolution of night vision.

The only way to see better at night is to compensate for lowered visual acuity by providing higher magnification. Then, of course, motion and vibration become an issue. The battle tank used an 8-power scope in a gyro-stabilized turret. Today the night-vision issue is almost moot anyway because of the availability of reasonably priced light-magnification instruments.

There is a magical quality imputed to various optical coatings to reduce glare and/or increase contrast. In reality, coatings are important only on the internal surfaces of the optics to reduce internal reflection. A speck of salt spray on the exterior of the objective lens or eyepiece negates the effect of the surface coating. The solution is to keep your lenses clean, wipe off salt spray with a tissue dampened with fresh water, wear Polaroid sunglasses to minimize surface-reflected glare, and hold the instrument so your hands form a sunshade to prevent direct sunlight from entering the objective lens.

Adequate eye relief is essential in a good pair of binoculars. Most binoculars are intended for use without glasses. Designers anticipate that the eye will be positioned about 10 mm from the eyepiece and maintained in position by slight pressure on the eyecups. Under these conditions, the exit pupil of the binocular will be superimposed on the pupil of the eye. In practice, however, few sailors over the age of 40 get along without spectacles or sunglasses. Even with the eyecups retracted or folded, eyeglasses position the binocular's exit pupil in front of the eye's own pupil. This results in the vignetting of the binocular's field of vision, providing the impression that

one is viewing the scene through a fuzzy tunnel.

### Eye relief

With the use of special eyepieces, it is possible to provide more than 20 mm of eye relief. For eyeglass wearers, such binoculars offer an unrestricted field of view and are a delight to use. Since long eye-relief eyepieces are about twice as expensive to make as standard eyepieces, they are not often found on lower-cost binoculars. The eyepiece, however, is one of the cheaper parts of a binocular. Given the demands of an aging, eyeglass-wearing population, manufacturers are beginning to incorporate long eye relief into their middle- and higher-priced lines at about a 15 percent premium in price. For years, German manufacturers have identified long eye-relief glasses with the letter B as a suffix to the specification. Thus, Zeiss 7 x 35B identifies a long eye-relief binocular. Check the eye relief in the specifications. Anything under 14 mm is too short for use with eyeglasses.

My personal binocular strategy, refined by years of boating and some applied optical experience, is to use two sets of glasses. First get a high-quality, 6- or 7-power, daytime binocular with moderate-sized objective lenses and long eye relief. These are usually called sports glasses. They are sharp and small enough to keep with you at all times. They hang around your neck without causing spinal deformity. Most moderately priced sports glasses are not truly waterproof, but they can be shoved in a parka pocket if things get wet. If you hunt around, you can get a really good set for about \$150 to \$200. Nikon, Minolta, Bausch and Lomb, and Pentax make suitable models. Leica and Zeiss make excellent



**Jason**

sports glasses but charge three to four times as much.

Then get a set of 7 x 50 marine glasses from any of the cut-rate marine stores.

Adequate quality, costing from \$50 to \$70, is good enough for


the few instances in which 7 x 50 is required. This is the 30-minute period at dawn and dusk characterized as deep twilight. After twilight, the dark-adapted eye has about 10 percent of its daylight visual acuity. The high precision of the optics in the Zeiss, Leitz, and Swarovski glasses is overkill.

### Specialized tasks

Differences in light transmission, so heavily advertised in the manufacturer's literature, are almost irrelevant under these conditions. Just about any pair of 7 x 50 glasses will show you all that you can see. If you want to see more, buy a light-magnification scope.

At a total cost of less than \$300 or so, you have two binoculars, each specialized for its particular task. If one is damaged, you still have the other.

Dropping a set overboard is less of a financial heartache than deep-sixing a Zeiss glass. And when one of your guests asks to use a pair of binoculars, you can hand him (or her) your marine glasses with minimal anxiety.

Finally, remember that binocular selection is a personal matter. How it fits the hand is almost as important as how it fits the eye. My own favorite is an old 6 x 24 Bushnell Custom Compact. You might remember this as the one that was advertised as the backup glasses on an Apollo moon mission. If I had the time and money, I would haunt pawnshops to find a 1950s era Leitz 6 x 24 Trinovid. When my son was a naval officer, he used a personally purchased pair of Meade 8 x 32 binoculars on his bridge duty watches instead of the Navy issue 7 x 50s. While I can't guarantee that you could read the Bible engraved on the head of a pin at 100 yards with any of these glasses, you should be able to decipher the numbers on buoys and markers with relative ease. 



**Meade**



**Bushnell, author's choice**

# Biodiesel for sailors

*What it is and what it does for you and your engine*

by Durkee Richards

**M**OST BOATERS HAVE PROBABLY heard about biodiesel as an alternative fuel but never actually seen or used it. As long as our auxiliary engines are working well and diesel fuel is available when we need it, we're happy. However, developments in national energy policies may force changes in where and how alternative fuels are used. We have already seen federally mandated reductions in sulfur content in diesel fuels. Other changes in composition to help achieve air quality standards are probably not far behind. This might cause a change in the composition of the fuel at your fuel dock.

Biodiesel is one of the more attractive and heavily promoted alternative fuels. Here's a closer look at what it is, the known benefits, and the issues that may be important to boaters.

## What biodiesel is

In one sense, the use of biodiesel is a return to the history of the diesel engine. In his early work on a compression-ignition engine, Rudolf Diesel used a variety of vegetable oils, including peanut oil. Biodiesel can be manufactured from vegetable oils, recycled

cooking oil, greases, or animal fats.

Soybean oil is the primary source of biodiesel in the United States, while rapeseed oil (a close cousin of canola oil) is frequently used in Europe. In their original form, these oils have relatively high viscosity and cannot be directly substituted for conventional diesel in most engines. However, some owners of vehicles with diesel engines have installed conversion kits

“**Biodiesel can be manufactured from vegetable oils, recycled cooking oil, greases, or animal fats.**”

that heat used cooking oil to reduce its viscosity and allow the engine to be switched over to the vegetable oil after the engine has been started on diesel or a biodiesel blend.

To make biodiesel, the starting vegetable oil is reacted with an alcohol (usually methanol) in the presence of a catalyst (commonly sodium or potassium hydroxide). This process is referred to as transesterification. The result is a combination of fatty acid methyl esters. These are hydrocarbon chains, usually C16 – C18, with two oxygen at-

oms attached to each chain. The presence of the oxygen contributes to the more complete combustion of biodiesel fuel as compared to petroleum diesel.

A byproduct of transesterification is glycerin, which is separated from the biodiesel and sold into other markets (0.15 pound of glycerin for each pound of biodiesel). A second major byproduct from soy-based biodiesel is soybean meal. About 4.5 pounds of meal are produced for every pound of soybean oil.

Recycled greases and animal fats require a different process that involves sulfuric acid and methanol. The American Society for

Testing and Materials (ASTM) specification for biodiesel requires that any residual methanol be removed so it does not suppress the flash point of the fuel. The values in the table on Page 22 were extracted from a National Renewable Energy Laboratory report on biodiesel.

## Advantages of biodiesel

**Blending:** One attractive characteristic of biodiesel is that we do not face an all-or-nothing situation. Biodiesel is miscible in conventional #1 or #2



# “In his early work on a compression-ignition engine, Rudolf Diesel used a variety of vegetable oils, including peanut oil.”

diesel fuels in any ratio. Because biodiesel has a slightly higher specific gravity than diesel, it can be “splash blended” by adding it to the top of a partially filled container of diesel. A 20 percent blend of biodiesel in #2 diesel, called B20, is the most common blend. For most fuel properties, the variation is linear with the percent of biodiesel in the blend. The most noticeable exception is lubricity, where most of the possible benefit is achieved with as little as 3 to 5 percent biodiesel.

**Cleaner exhaust:** This is one of the biggest benefits of biodiesel and clearly one of the reasons that the Environmental Protection Agency (EPA) is encouraging its use. Testing in heavy-duty diesel engines (such as would be used in long-haul trucks and buses) has shown significant reductions in carbon monoxide, hydrocarbons, and particulates. In addition, the starting biodiesel has very low sulfur content compared to #2 diesel and thus has correspondingly low sulfur emissions. Reductions in tailpipe emissions for biodiesel blends with petroleum diesel tend to vary linearly with the concentration of biodiesel used in the blend. The changes in exhaust-gas composition with biodiesel blends were summarized in an October 2002 EPA report (see graph on Page 23).

In addition, a simple “sniff test” confirms that the exhaust gases are qualitatively different. Diesel exhaust gases contain a long list of aromatic ring compounds that account for the characteristic smell of the exhaust. Several of these compounds are of concern as possible causes of cancer in humans. Biodiesel does not contain any of these aromatic ring compounds; hence, its exhaust gases are easier on the nose and on the environment. The obvious benefit for sailors is the improved exhaust odor when motoring in a light following breeze, but the associated health benefit may be even more important.

The improved quality of the exhaust gases is evident

even with B20 blends (a blend of 20 percent biodiesel in #2 petroleum diesel). The St. Johns, Michigan, school system switched its fleet of 31 buses to a B20 blend in April 2002. The garage foreman and head mechanic, Wayne Hettler, was quoted as saying, “When the drivers start their engines in the morning for their pre-checks, the air in the lot is much clearer, thus making it more pleasant for the drivers to complete their checks. Also, the maintenance staff recognized the immediate improved air quality in the shop when we changed the buses to B20.”

Another aspect to air quality shows up in a total life-cycle analysis. When biodiesel and petroleum diesel are burned in a diesel engine, they generate similar amounts of carbon dioxide per horsepower-hour. However, in the case of biodiesel produced from vegetable oils, the plants consume much of this carbon dioxide during the production of oil seeds or beans. Hence, the use of these biodiesel fuels can substantially reduce the net increase in atmospheric carbon dioxide, which is an important greenhouse gas.

**Better biodegradability:** Biodiesel consists of various fatty acids, all of which have two oxygen atoms attached to the hydrocarbon chains. This makes them very biologically active when compared with the alkane

and alkene hydrocarbon chains in diesel. In addition, the enzymes and microorganisms

needed to break them down into carbon dioxide and water are naturally occurring. Pure biodiesel degrades about five times faster in an aquatic environment than #2 diesel. A further benefit of biodiesel use is that the degradation of the petroleum diesel in a blend with biodiesel is accelerated by the presence of the biodiesel.

Taking this one step further, the CytoCulture company has developed a product, the CytoSol Process, composed largely of vegetable-oil methyl esters that are similar to those in biodiesel. The product is used to help clean up spills of crude oil. It has been licensed by the California Department of Fish & Game as a “shoreline cleaning agent.”

Marinas located in environmentally sensitive areas may have difficulty securing a permit for a fuel dock. For boaters, the greatly improved biodegradability of biodiesel might make the difference between having fuel conveniently available or not. The marina at the head of Eagle Harbor inlet on Bainbridge Island, Washington, does not have a fuel dock. However, The Chandlery at Winslow Wharf in Eagle Harbor is able to provide soy-based biodiesel in 5-gallon containers for boaters in the marina.

**Improved lubricity:** Biodiesel fuels have lubricity superior to #2 fossil

diesel. This is important because some critical components of diesel engines rely on the fuel for lubrication. These include the high-pressure fuel pump and injectors. The former is a particularly costly component, one that is not easily serviced by boat-owners. Lubricity assures long service life.

There are two industry standard tests for lubricity of fluids. One is the Ball On Cylinder Lubricity Evaluator (BOCLE) scuff test. For this test, the reported result is the load in grams at which failure to maintain hydrodynamic lubrication

## A comparison

fuel property	#2 diesel	biodiesel
Relevant standard	ASTM D975	ASTM PS121
BTU/gal	131,000	117,000
Kinetic viscosity @40 °C	1.3 - 4.1	1.9 - 6.0
Specific gravity @ 60 °F	0.85	0.88
Carbon, weight %	87	77
Hydrogen, weight %	13	12
Oxygen, weight %	0	11
Sulfur, weight %	0.05 max.	0.0 - 0.0024
Flash point, °C	60 - 80	100 - 170
Cloud point, °C	-15 to 5	-3 to 12
Pour point, °C	-35 to -15	-15 to 10
Cetane number	40 - 55	48 - 65
Lubricity:		
BOCLE scuff, grams	3,600	>7,000
HFRR, microns	685	314

occurs. Here, higher numbers are better. Another standard test is the High Frequency Reciprocating Rig (HFRR), where the reported result is the length of the wear scar. Here, lower numbers are better. When the refining process for diesel fuel was changed to reduce sulfur content, these industry-standard tests confirmed that the lubricity of the resulting fuel was reduced.

Even with the reduced lubricity, most well-maintained marine diesel engines will run long enough that individual owners will probably not be aware of the increased probability of injector pump failure. However, field data confirms this loss of lubricity. For example, a webpage for Shell Canada states:

*"The process of removing sulfur from diesel can also remove certain trace compounds which help to provide the fuel's natural lubricity. As a result, there has been a corresponding rash of complaints in the U.S. of failed diesel pumps and injectors, as well as some seal failures, associated with the use of low-sulfur diesel."*

Other support for concerns about lubricity of low-sulfur diesel comes from Stanadyne Automotive Corp., the leading manufacturer in the United States of diesel-fuel injection equipment. The company's quality systems manager, Paul Henderson, supported an initiative in Kansas to require that biodiesel be added to petroleum diesel. His letter of support contained this statement:

*"There have been numerous examples from the field where lack of lubricity in the fuel has caused premature equipment breakdown and, in some cases, catastrophic failures. This problem will be more dramatic as the EPA moves to further reduce the sulfur levels in petrodiesel fuel."*

Fortunately, the improvement of lubricity in biodiesel blends is one case where the change in property is non-linear with the amount of biodiesel in the blend. Essentially all of the benefit of 100-percent biodiesel is achieved with just 3 to 5 percent biodiesel blended with #2 diesel.

**Renewable fuel:** This is another major reason that biodiesel receives strong support at a federal level. Recent rapid increases in fuel prices have highlighted the consequences of small changes in the balance between oil supply and demand. Furthermore, the rapid increases in global demand and the prospects of global oil production from wells peaking out in the not-too-distant future make it prudent to seriously consider renewable fuel sources.

The National Renewable Energy Laboratory produced a detailed study of the Life Cycle Inventory of biodiesel and petroleum diesel. Life Cycle Inventory means that all materials and processes from the initial extraction of the feedstock to the final use of the product are included in the analysis. This report, issued in May 1998, provides some useful numbers by which to compare and contrast these two, quite different, fuel sources.

In this report, the authors concluded that the current Life Cycle Energy Efficiency for petroleum diesel in the

**Most suburbanites have never seen a raw soybean. Instead, they know soybeans as a roasted snack food and a gourmet cooking oil.**



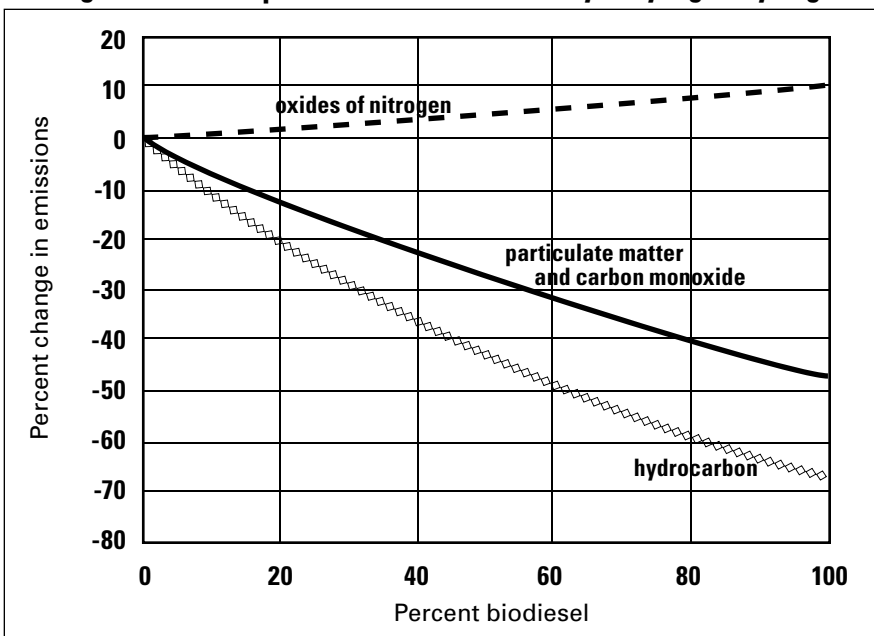
United States is 83.28 percent. This means that for every 100 BTUs' worth of crude oil in the ground, 83.28 BTU of diesel fuel becomes available at a pump at your favorite station. The bulk of the difference is the energy required to process (refine) the crude oil into diesel. However, the energy cost to extract the crude is not insignificant and will grow as the average age of oil fields increases.

A second ratio of importance when evaluating alternative fuels is the Fossil Energy Ratio. This is the ratio of the fuel energy to the fossil energy used in its life cycle. For petroleum diesel, the Fossil Energy Ratio is 0.8337. This number is slightly higher (expressed as 83.37 percent) than the Life Cycle Energy Efficiency because some of the electricity used during

the processing of crude oil is supplied by hydroelectric and nuclear power sources.

The corresponding Life Cycle Energy Efficiency for a soybean-based biodiesel in the United States is 80.55 percent. The largest consumers of process energy for biodiesel are soybean crushing (and soybean meal production) and soy-oil conversion to biodiesel (about 34 percent each). The next largest process-energy

**Average emission impacts of biodiesel for heavy-duty highway engines**



step is sustainable production of the soybeans (about 25 percent). Transportation energy costs make up the balance.

Although the Life Cycle Energy Efficiencies for these two fuels are very similar, their Fossil Energy Ratios are quite different. The ratio calculated in this study was 3.21 for soy-based biodiesel versus 0.83 for diesel. It seems that the Fossil Energy Ratio should approach infinity for a truly “renewable” fuel. However, current biodiesel conversion in the United States today generally uses methanol derived from natural gas. If a producer were to switch to a renewable source for the methanol, then the Fossil Energy Ratio for the resulting biodiesel would increase considerably. Even at a ratio of 3.2, it is this leveraging of the use of fossil fuels that makes biodiesel an attractive alternate fuel.

**Safer handling and storage:** Key factors here are the higher flash point, which reduces the risk of fires, and the fact that biodiesel is nontoxic to humans, which reduces concerns about ingestion or contact with skin or eyes. This can contribute to a skipper’s peace of mind when lashing on a canister of extra fuel for longer cruises.

### Disadvantages of biodiesel

**Higher cost:** Even with the tax breaks offered in many states and lo-

calities, biodiesel is more expensive than #2 diesel. (The price in 5-gallon containers at The Chandlery is about \$3.25 per gallon.) Although retail costs may fall as volumes increase, the price of biodiesel is likely to remain above that for petroleum diesel for years to come.

**Greater solvency:** This can cause a variety of problems. Older vessels may have significant deposits on the walls of their fuel systems. Switching to high biodiesel blends in such vessels may cause these deposits to be flushed out and lodged in the primary filter. Regular monitoring and replacement of filters is required to manage this problem. The greater solvency can also make spills more damaging to painted surfaces. CytoCulture recommends particular caution about spills on teak decks with polysulfide seams.

Swelling of fuel lines and gaskets is a possible concern for high-biodiesel-content blends. This is more likely to occur with older engine installations because the fuel lines are often composed of materials (natural rubber products) that are more vulnerable than the synthetic compounds used today. If such problems do arise, they can be resolved by replacing the fuel lines or gaskets with newer materials. These problems are much less likely to occur for B20 or lower biodiesel content blends.

**Reduced energy content:** Biodiesel fuels have a lower heat content per gallon than #2 diesel. This translates into reduced engine torque and power and higher fuel consumption — usually in the 5 to 8 percent range for most published studies. These differences in engine power are sensitive to operating conditions. Operation at low speed and high load significantly reduces the difference in power produced.

**Cold weather problems:** The flash-point temperature of biodiesel is typically 100°F higher than that of #2



diesel. This probably means that the minimum combustion chamber temperature for ignition will be higher for biodiesel (although I have not found any measured values for this factor). A higher minimum combustion chamber temperature could lead to cold-weather starting problems for tired engines with low compression that do not have glow plugs or other forms of pre-heating. The higher cetane rating for biodiesel might be an offsetting factor since a higher cetane rating means that there is a shorter time delay between injection and ignition of the fuel.

Cold-weather problems are more likely to be a concern for motorists than for boaters. The cloud point, pour point, and cold filter-plugging point are all higher for biodiesel than for petroleum diesel. Engines operated in areas with winter temperatures well below freezing may experience problems with fuel flow through filters when using blends with high biodiesel content. These problems are more severe for biodiesel derived from animal fats than for those derived from vegetable oils.

For those who want to operate in severe winter conditions with biodiesel blends, one solution is to use #1 diesel as the blending stock rather than #2 diesel. It is a common practice for motorists in some northern states to blend #1 and #2 diesel during the coldest winter months.

**Space availability:** It is still rare to find a fuel dock with biodiesel or a biodiesel blend. These are slowly



**Durkee Richards exchanges an empty for a full jug of biodiesel fuel with Bob Schoonmaker of The Chandlery in Eagle Harbor, Washington, at left, and fills the tank of his J/32, above.**



# “The bottom line for boaters? More complete combustion with biodiesel, a win for the environment, and probably a win for our engines as well.”

becoming more common for vehicles. This could change rapidly if use of this kind of fuel is mandated as part of a national energy policy.

## What about our engines?

### Engine performance and life:

Many studies have been published that compare the short- and long-term performance of biodiesel and petroleum diesel in large engines, such as would be used in urban buses and long-haul trucks. This is to be expected, since these applications have the most impact on urban air quality. These applications also account for a large fraction of the diesel fuel used in the United States and should figure prominently in any discussion of national energy policy.

Because small auxiliary diesel engines are significantly different from those used in buses and heavy

trucks, studies on vehicular engines may not be relevant to sailors. A 1995 report from the University of Idaho did feature smaller diesel engines that are closer to those used in sailboats. The short-term studies in this report were done with a John Deere #4239T four-cylinder, direct-injection, turbo-charged diesel engine (3.9 L, 82 hp). The long-term studies were conducted using a Yanmar #3TN75E-S three-cylinder, direct injection, naturally aspirated diesel engine (0.94 L, 20 hp). Each test sequence used eight different biodiesel fuels — the methyl and ethyl esters of soy, canola, and rapeseed oils and of beef tallow.

The findings using relatively small displacement engines are in general agreement with those that used large engines. They found lower peak torque and power production associated with the lower heat content of biodiesel

fuel and lower smoke density for the biodiesel, particularly at low rpm/high load conditions. Interestingly, the smallest difference in power was for low rpm/high load running conditions where the largest difference in smoke density occurred. (At 1,300 rpm, engine power was essentially the same for all fuels used.) The bottom line for boaters? More complete combustion with biodiesel, a win for the environment, and probably a win for our engines as well. However, we can expect to burn a bit more fuel per hour.

As part of the short-term studies, the engine was repeatedly torn down to evaluate coking on the injector tips and carbon deposits on the pistons and valves. The results were mixed.

As compared to low-sulfur #2 diesel fuel, the various biodiesel fuels were found to cause more coking on the injector tips and more carbon de-

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“We can expect that the superior lubricity of biodiesel will increase the service life of the piston rings and high-pressure fuel pump in our diesel auxiliaries.”

posits on the piston heads, but fewer deposits on the intake and exhaust valves. There's probably no benefit here for our diesel auxiliaries in term of carbon deposits. But read on.

The long-term tests using Yanmar engines included wear measurements on many of the engine components. Each of the three engines was used for a 200-hour test sequence with three of the nine fuels (eight biodiesels plus the reference #2 diesel). Each engine was disassembled and measured before and after each test sequence. No detectable differences between the fuels were found for wear on wrist pins, cylinder walls, valve stems, main bearings, camshaft lobes, or crankshaft journals. A significant difference in wear rates was found for the ring sets (two compression rings and the oil control rings) with all the biodiesel fuels showing reduced ring wear. The

authors attributed the reduced ring wear rates to the superior lubricity of the biodiesel fuels.

The ring wear rate averaged across all eight biodiesel fuels was one-eighth of that for the reference diesel. No replicates were run, and the measured amounts of wear were small. Therefore, one should be cautious about the absolute wear rates. Nonetheless, the significantly lower wear rates found for 100 percent biodiesel fuels in this study are grounds for optimism regarding the benefits of using biodiesel blends in our diesel auxiliaries. We can expect that the superior lubricity of biodiesel will increase the service life of the piston rings and high-pressure fuel pump in our diesel auxiliaries.

**Engine warranties:** The position statements of the major engine manufacturers are carefully ambiguous on

this point. They usually emphasize that the engine manufacture warrants the engine and not the fuel used and that, as long as the engine is used with fuels that meet the relevant ASTM standards, then the warranty against manufactured defects will remain in force. In this regard it is encouraging that Yanmar was one of the sponsors of the 1992 Sunrider Expedition. During this around-the-world voyage, Captain Bryan Peterson piloted his 24-foot Zodiac rigid inflatable boat nearly 40,000 miles between his departure from Pier 39 in San Francisco on July 4, 1992, and his return on September 8, 1994. The expedition consumed over 18,000 gallons of soy-based biodiesel. A picture of the craft and details about the route are found on the website for the National Biodiesel Board (<<http://www.biodiesel.org/>>). Search for “Sunrider Expedition.”

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**Other equipment aboard:** What about other equipment on our boats that is fed from the main fuel tank — auxiliary generators, diesel cabin heaters, and so on? Low-percent blends (20 percent or less) will probably cause few concerns. For higher concentration blends, the greater solvency of biodiesel may again become an issue depending upon the composition of the fuel lines and gaskets. For older equipment, sailors will probably not be able to get useful information from the manufacturer and will have to sort it out independently. Another issue may arise with diesel heaters that use glow-plug ignition. The higher flash point temperature of biodiesel might cause ignition difficulties for high-concentration blends.

Not long ago, I installed a Wallas 30D in my sailboat. The distributor for these marine heaters did not have any information available from the manufacturer regarding its use with biodiesel. On his own initiative, he had done a brief test and found that these units would run on 100 percent

biodiesel but not always start reliably. I did my own tests before installing the heater using soy-based biodiesel from Imagine Energy in Washington state. Using a fully charged, group 27 gel cell marine battery, reliable ignition occurred for all blends up to 100 percent biodiesel.

**Fuel stability and microbe growth:** Sailors with auxiliary diesel engines typically use very modest amounts of fuel during the boating season. Old fuel may remain in the tank for extended periods. Hence, fuel stability is a major concern. The Office of Naval Research funded a study of diesel fuel stability using 10 and 20 percent soy-based biodiesel. The most significant form of fuel instability during storage is the formation of solids that can plug filters and injectors. The authors of this study started with petroleum reference fuels that were known to be stable and unstable. The blends with 10 and 20 percent soy-based biodiesel were subjected to the relatively severe conditions in the

ASTM 5304 test matrix. The presence of soy biodiesel was found to enhance the stability of all the blends. At the 20 percent level, the stability of the blend using the known unstable petroleum diesel actually improved enough to pass the test matrix.

These results give some comfort to sailors. We should still be concerned about microbial growth associated with water in our fuel tanks, however. We might need to be even more careful with biodiesel blends given the high biodegradability of biodiesel.

## What to expect from biodiesel

### Experiences of other boaters:

CytoCulture surveyed 100 boaters (97 sail and 3 power) using biodiesel in the San Francisco Bay area over a four-year period. Of these users, 87 reported no problems. The most common reported problems were with old sediments clogging filters or swelling of fuel lines. This is not surprising in view of the fact that over 40 percent of the engine installations in this survey date from the 1970s. The full report

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“We appreciate ...the reduced  
tendency for the transom  
...to wear a sooty mustache.”

can be found on the website for CytoCulture (<<http://www.cytoculture.com>>). CytoCulture also produced an informative handbook for marine biodiesel that can be downloaded there.

Another study of boaters' experiences with biodiesel comes from Germany's Lake Constance region. Starting in 2000, 24 participants were monitored over three years. The most common engines were Volvo-Pentas and Yanmars with one, two, and three cylinders. Four boats experienced problems, about the same ratio as found in the CytoCulture survey. The report states that the problems that occurred were easily corrected. The detailed discussion of those problems was a bit much for my school German.

### The bottom line


With a 5 percent biodiesel blend, expect an improvement in lubricity that will contribute to longer life for the high-pressure fuel injection pump and probably lower piston-ring wear as well. But there should be no immediately evident changes in engine performance or significant differences in the

appearance or smell of the exhaust.

For 20 percent blends (B20), expect a noticeable difference in the exhaust smell and visual appearance. There may also be fewer soot deposits on the hull, so your boat no longer hails from “MinneapolisMudge.” (*Note: Hey! That was a direct reference to the editors' C&C 30. See photo below. -Ed.*)

The cleaner combustion and corresponding reduction in particulates may also help keep the oil looking clean longer. The Michigan school system mentioned earlier was able to extend oil change intervals, as based on oil analysis, when it switched to a B20 blend. The higher biodiesel content may contribute to further reduction in ring wear, although I have not yet found any engine wear life studies that used blends to confirm such a relationship. There will probably be no issues with the greater solvency of biodiesel at this concentration for most boaters.

For higher-concentration biodiesel blends, expect further improvements in exhaust characteristics. Fuel consumption may increase by a few percent. Monitor the fuel filters in case old deposits in the fuel system are carried out of the fuel tank and fuel lines. There may also be some swelling of fuel lines or gaskets depending upon the age of the engine and the materials used. Changing the fuel filters will be somewhat improved since the fuel that inevitably gets on your hands will smell better and be easier to clean up.

My wife and I are using about a 30 percent blend. We appreciate the improved exhaust odor and the reduced tendency for the transom of our boat to wear a sooty mustache. We do not have enough hours of running time to be able to comment on the other expected benefits of using biodiesel but anticipate that the improved lubricity and cleaner combustion of this blend should contribute to a longer engine service life. 



**Jerry Powlas checks the docklines.**  
The editors refer to the telltale smudge on their C&C 30 as “diesel butt.”

# A chart to reflect on

## Do we navigate from place to place or from time to time?

AS A GIFT, MY BROTHER-IN-LAW presented me with a Maptech waterproof book for the Block Island-to-Nantucket region. It prompted me to inventory the chart collection aboard my sailing vessel, *Coppacetic*, and weed out any that were old and no longer needed. I was surprised by how many charts I had accumulated over the years; there were at least three dozen in my antique brass chart tube and my newer plastic one. I made two piles, one for those charts to be discarded and another for keepers.

Before either contained more than a handful, I came across a venerable chart, 1210. It covered the waters between Martha's Vineyard and Block Island. I had not looked upon it in a long time. I unrolled it very carefully, since the years had taken their toll. It had been folded at some point, and the creases were about ready to give way. The paper was slightly damp, as paper tends to get when it has absorbed salt from sweaty hands and the inevitable ocean spray.

Memories flooded my mind as the map images became recognizable. I recalled once again how much fun I had had in the area displayed before me on paper. I remembered looking at this very chart as a teen. It was frayed and faded when it was handed down to me by my mother's cousin, Ed. I would spread it out on the kitchen table on cold winter nights and dream of sailing to places with strange, yet magical-sounding, names like Cuttyhunk and Penikese or Tashmoo and

Menemsha, all of which, with fair wind, were all less than a day away from my home port.

### Learned more

My brother, John, and I were fortunate that Uncle Rudy and Cousin Ed would occasionally take us on summer cruises. We learned a little more about navigation and seamanship each time. Sometimes we made mistakes — like the time Johnny dropped Uncle Rudy's ratty, but for some reason treasured, mop overboard. Or the time I accidentally jibed and almost took Ed's head off with a fast-moving, heavy boom. My brother's action turned into a drill on

“I remember being surprised at how long it can take to travel an inch on a 1:80,000-scale chart while battering into rough seas...”

how to recover objects or people lost overboard. Mine got me a fairly long and strong lecture on the topic of paying attention to what I was supposed to be doing. We tended to learn fairly quickly under Rudy's and Ed's tutelage.

I remember being surprised at how long it can take to travel an inch on a 1:80,000-scale chart while battering into rough seas, and I discovered the truth of the words, “The waves turn the minutes to hours,” from Gordon Lightfoot's song, “The Wreck of the Edmund Fitzgerald.” Dealing with


impenetrable offshore fog was at first frightening, then merely challenging. I recall the great feeling of accomplishment when navigation marks loomed up where and when they were supposed to after I had agonized over the degree of compensation for the effects of wind, waves, and current.

By the time we were in college, John and I sailed our mom, dad, and five siblings to the Elizabeth Islands and beyond. The chart is actually worn through in some spots, like where navigation mark R2 should be off Newport's Brenton Point. It is from there that we began so many family adventures. As I gazed at the old 3- x 4-foot piece of paper I wondered, “Is there any place better to swim than Quick's Hole? Is there a more scenic anchorage than Hadley's Harbor? Can there be a more beautiful sight than the cliffs of Gay Head viewed just before sunset from the top of Cuttyhunk Island?”

### Different each year

After college, there were “bachelor cruises.” The yawls, ketches, and sloops were chartered, and the crews were a little different each year. Perhaps I should have replaced old 1210 by then, but there was so much stored information on it. The parallel rules that were used for laying out courses had walked to Cormorant Rock, Ribbon Reef, Buzzards Bay Tower, Nebraska Shoal, and Seal Ledge countless times, and the headings to any-

where you wanted to go were already plotted, marked, and tested. There was comfort to be derived from that.

As I tried to decide which pile the old 1210 belonged in, I was hampered by images of people who had pored over that chart with me and who had passed on or whose sailing days were over. I could see their fingers tracing routes between cans and nuns, and I could hear their stories. I knew that at some point I would have to discard that old chart. But it wouldn't be for a while. 



# Around the world

## Swallowing the anchor in Maine — for how long?



BILLY BLACK

This was not the first of many “change of tacks” during our marriage. The first occurred a year earlier, soon after we eloped on the island of Barbados. We had our sights on the Pacific, but we were broke and figured on working for a year. Luckily, our parents offered bank checks as wedding gifts. The heck with working! We made a beeline for Panama and a life of tropical splendor.

While charging boldly across the Pacific we fantasized about our future: where we would live and how many kids we would have. Two kids would be perfect. We would sail for a couple of years, return to the States, then move ashore and start a family. If anyone had told us our voyage would last seven years and that we’d finish up with three children on the boat, there might have been mutual mutiny.

**A**FTER 16 YEARS OF CRUISING, JAJA and I are taking a break. We bought land in Maine, and we’re building our first house. We’re doing everything ourselves: design, engineering, construction, roofing, siding, plumbing, and electrical. Self-sufficiency is a state of mind we’ve brought with us from our cruising days.

Meanwhile, *Driver* is sitting regally in the boatyard where I work. She’s a high-and-dry monument to our current way of living. When I look at her through the windshield of my pickup, I recall moments from our recent five-year voyage. Yesterday I remembered the ice in Spitsbergen, Norway. A gigantic chunk drifted toward *Driver*, nearly crushing her against the shoreline. We hauled up the anchor quickly and deftly escaped tragedy. Sometimes I look at *Driver*’s faded black bottom paint and imagine I’m under water looking up at the hull as she speeds through the water... a rock’s eye view.

“PERSPECTIVE” IS A FORCE.  
THE SUREST WAY TO END UP IN A  
RUT IS BY LOSING MOMENTUM  
AND LETTING YOUR IMAGINATION  
GET INTO IRONS.

When cruising — particularly during long ocean passages — our imaginations wandered toward solid land. For years we fantasized about designing and building a house. Now that we are in the midst of realizing this dream, we fantasize about making long ocean passages. Escaping into opposite realms is therapeutic, a way to maintain perspective. With one foot in a seaboot and one in a hiking boot, we incorporate the lessons we learned while sailing to our advantage on land. For example, our house will be solar-powered. Photovoltaic cells and batteries worked well on our boat. Why not use them for our house?

Our experience with solar panels began in 1989. Jaja and I were sailing across the Pacific on our 25-footer, *Direction*. Jaja had been under the weather for a while, so we hove into Pago Pago harbor at American Samoa to see a doctor. We had talked ourselves into believing she had some sort of tropical malaise. It came as no surprise, however, when the diagnosis was the imminent birth of our first child. In part our original diagnosis was correct; it’s called the “Deserted White Sand Beach Syndrome.”

“ADVENTURE” IS DEALING WITH THE UNKNOWN WHILE MOVING TOWARD THE UNKNOWN.

Samoa was a transitional time: Baby Number One was on the way. We were down to less than \$500. We had no bank account, credit cards, or health insurance. Our families were frantic, and cyclone season was fast approaching. Everyone told us to sell the boat or ship it back to the States. *Go home! Go home!* It took a couple of weeks to take stock of our new position in life. We were in our late 20s and not very keen on responsibility. *Parents? Us?* While we were ruminating, Jaja took a waitressing job, and I found work as a commercial diver. I’d never done scuba

The Martin family members are living (metaphorically anyway) with one foot in a seaboot and one in a hiking boot. For years, they wandered the globe from east to west and from south to north (see map on Page 32). They are pictured above sailing in South Africa and on facing page in Spitsbergen and hiking in the Faroe Islands.



# in baby steps

by Dave Martin

before, but the pay was great.

One of the guys I worked with had an old solar panel. He sold it to me for \$100. I installed it on *Direction*, and we reveled in the simplicity of solar energy.

Our nightly conversations centered on these questions: "Why does it seem mandatory for us to have a baby in the States? The world is liberally populated with individuals born elsewhere. Is there some prerequisite that requires Americans to give birth on American soil?" One option was to remain in American Samoa. We would get the "America" part without leaving the islands. With this in mind, Jaja visited the prenatal clinic. A dog roamed freely through the examination rooms. Later, we read in the newspaper about three mysterious newborn deaths at the hospital. The clincher came when we discovered that the maternity wing was located next to the hepatitis ward.

After receiving a boatload of unwanted advice, we decided to sail to Australia to have our baby. Using the money we had recently earned, Jaja filled *Direction* to the gills with food. Enough for several more months. She also ordered books on prenatal care and bought prenatal vitamins.

Looking back, I'm sure we were



procrastinating. Australia was several thousand miles away, representing another two months of cruising. We'd get to see Tonga, Fiji, and New Caledonia. Responsible or not, that was our decision, and it turned out to be a good one. Sometimes you just have to go with your gut.

**SOLAR PANELS ARE THE  
ANTITHESIS OF BABIES: NO NOISE,  
NO MOVING PARTS.**

The land we bought in Maine selected us, not the other way around. After a few days in Round Pond, we met a new friend, a realtor, who mentioned she had 25 acres for sale and that her client was particular about whom she would sell to. Very particular. Diane looked at us from head to toe and smiled, "I think you'll do."

We drove up to see it. It was only 10 minutes from the harbor. We walked the property line with our minds whirling in high gear. Was this for us? So fast? We weren't actively searching for property. We were "just looking." Our first choice for property, of course, was a big-sky view of the ocean's horizon. But waterfront property, or even water view, is for the financially motivated.

Privacy in the forest was the next best thing, and the property was rich

with it. There were red oak, birch, beech, white pine, hemlock, maple, and brown ash trees. Moose, deer, and squirrels roamed under the canopies, and beaver maintained dams on a small pond. The land was sloped, oriented to the south. Good light for solar panels. It was raw land without a structure, driveway, well, septic system, or power. Buying it would be like buying a bare sailboat hull: a lot of surface area for your dollar, but unusable until you make something of it.

Our Arctic journey had just ended; we'd only been back in the States for two months. We wanted to be land-based for a few years so our kids could have a sense of continuity through high school. But perhaps this was too much of a commitment. Should we buy undeveloped property? Fortunately, our voyages had been dominated by spontaneous decision making. We were in familiar territory.

Our proclivity to choose options that don't initially seem logical developed early on. Jaja and I recognized that we became different people when underway. Before a voyage, each hectic day is filled with schedules and lists. Away from land, schedules are left behind, the sky opens up, and possibilities seem unlimited. The hard part would be to retain this unencumbered attitude while living within the



# Travels with Dave and Jaja

If you weren't reading *Cruising World* in the 1990s, you might have missed reading about the travels of Dave and Jaja Martin. Allow us to bring you up to date.

**1983** – Dave and his father leave Seattle in a Cal 25, *Martini*, to circumnavigate Vancouver Island, transit the Panama Canal, cruise the Caribbean, head north to Rhode Island, and cruise south to Florida.

**1985** – Dave continues alone in *Martini*, cruising the Bahamas and heading to New York for work and a refit of the Cal, subsequently named *Direction*.

**1987** – Dave sets sail once more for the Caribbean and meets Jaja in St. John, U.S. Virgin Islands.

**1988** – Dave sails to England, and Jaja joins him there. The couple cruise on and are married while cruising in Barbados.

**1990** – Chris is born in Australia.

**1991** – Holly is born in New Zealand.

**1994** – The foursome spend time in South Africa.

**1995** – The Martins are awarded the *Cruising World* Medal for Outstanding Seamanship.

**1996** – Teiga is born in North Carolina. The Martins, now a family of five, buy *Driver*, a 33-foot steel sloop, and begin a refit.

**1997** – As a fivesome, the Martins set off for the Bahamas and from there north to Bermuda.

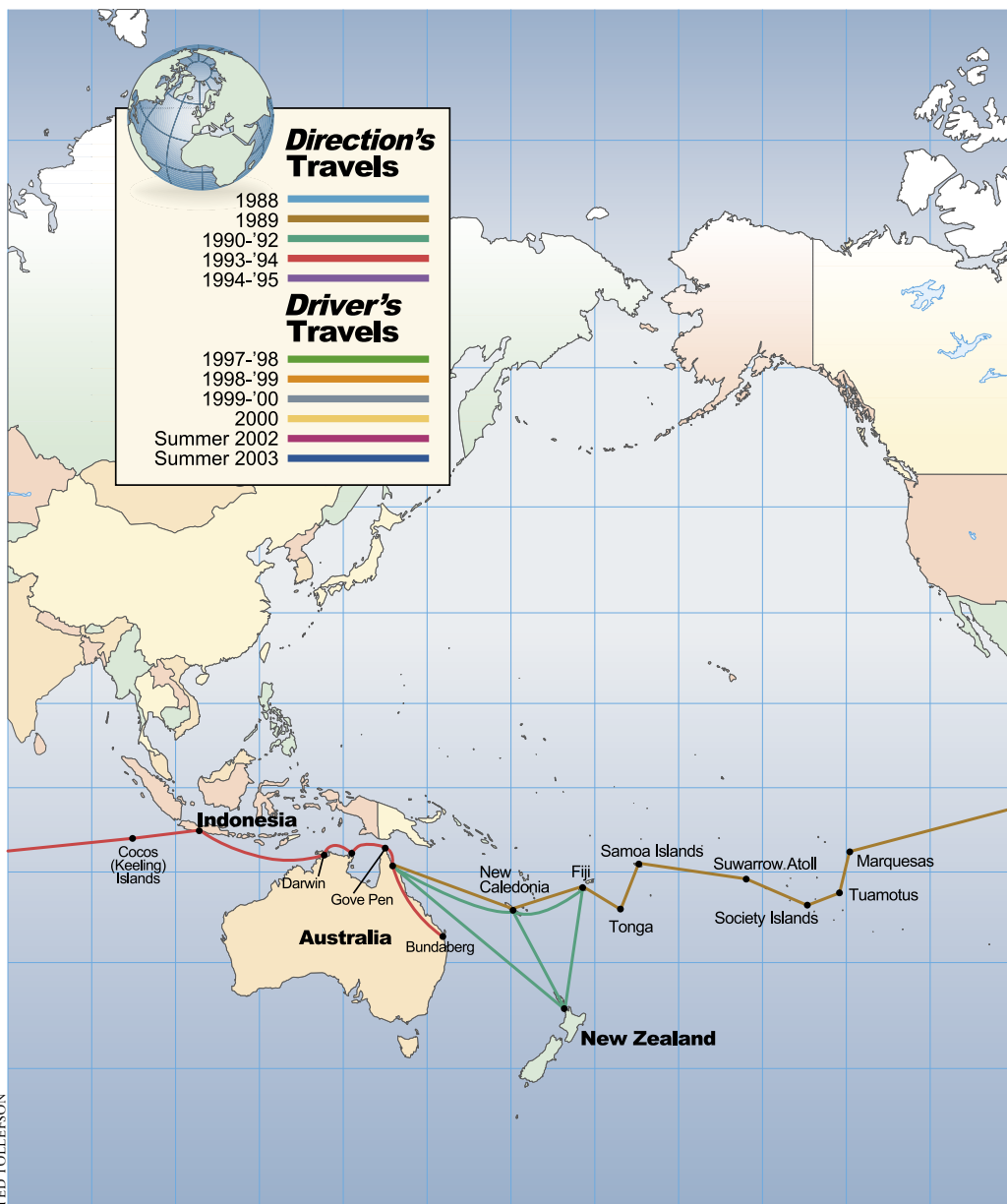
**1998** – From Bermuda they travel to Iceland, where they winter over aboard.

**1999** – They travel to Norway via Scotland and the Faroe Islands, wintering over above the Arctic Circle in Norway.

**2000** – They travel north to the pack ice in Spitsbergen and return to Norway for another winter.

**2002** – They sail *Driver* back to North America, arriving at Newfoundland.

**2003** – From Newfoundland it is a short hop to Maine and a new lifestyle. Only time will tell how long Maine will be their home.



confines of land. We hoped we could achieve this in the forest.

**Beware:**  
Spontaneity enhances your life. Instant gratification undermines it.

After Chris was born in Australia we backtracked to New Zealand in 1990. Sailing with a baby was an eye-opener. Chris was a wiggle worm. He hadn't yet learned that moving around on a boat can be most easily accomplished by lying perfectly still. Night watches at sea were a trial, especially with nighttime crying on the off-watch. There was also the reality of dirty cloth diapers in a boat that was battened down tight for sea. But we survived, and Chris survived. We knew we'd be more comfortable living ashore, but would we be happier? One

of the main ingredients of youth is to see how you react to hardship rather than find ways to avoid it.

Although Chris was a result of spontaneous combustion, his sister, Holly, was carefully planned around visa applications and cyclone season. Back then, New Zealand offered a six-month visa on arrival. With a "good reason" you were allowed to extend that visa for another six months. After a year in the country, a visitor was required to leave. Our first extension was easy. Pregnant wife. When our year was up, however, Holly was 2 weeks old, and cyclone season was upon us. We asked immigration for a second extension to avoid sailing into the teeth of a storm. We pointed out that if we could stay until May, Holly would have complete head-and-neck control and updated immunizations ... a much safer proposition for a sea



voyage to the tropics. Immigration agreed, and so our New Zealand odyssey lasted 18 months. I also had a good job, and the extra time was profitable.

Our passage north to Fiji became the turning point in our seafaring career. After that experience, everything else paled by comparison. It began when our ideal “weather window” shattered two days after departure. The predicted high-pressure system, which was supposed to dominate the region for a week, shifted unexpectedly and moved on to dominate someplace else. Moderate southerlies changed to gale-force easterlies. The wind leveled off at 45 knots and didn’t let up for 90 hours. There was no turning back.

I had rebuilt *Direction* specifically for this type of condition (see *Good Old Boat*, January 2005). Small sails, stout rigging, hard dodger, and gasketed companionway doors. Good hatches,

We rode the storm sailing close-hauled with the storm trysail. One knot of forward progress was our speed. Not much, but the momentum allowed *Direction* to power over the tops of most breaking wave crests. Occasionally a monster comber crumbled our way, picked *Direction* up like a volleyball, and spiked her into the trough.

Holly was 5 months old and breast-feeding. Chris was 2 years old and bored. We ate crackers and cans of cold soup because it was too rough to light the non-gimbaled stove. Hour upon hour, and day upon day, Jaja lay on the port settee under a blanket clutching Holly, and I lay on the starboard settee under a blanket clutching Chris. We listened to the sound of surf, tensing every time a comber rolled our way. We endured knock-down after knockdown. Salt spume infiltrated the cabin. Our clothes,

bedding, and cushions were soaked. Every night at 1700 hours we tuned our single-sideband to Keri Keri Radio in New Zealand for the offshore forecast. “Sorry, folks, looks like another 24 hours of 45 knots.” Our life stretched out before us.

After the storm we were physically and mentally wiped out. Every fiber of our nerves was frayed. To spice matters up, fog and clouds prevailed for days after the storm, rendering my sextant useless. On Day 10 the sun reappeared. By now, I’d been plotting a DR course for more than 700 miles. Working that first set of running fixes after so long a lapse was exciting. I did the math using a pencil and paper and, like magic, by day’s end I knew to within several miles where we were. My DR had been pleasingly close: I had underestimated our distance run by less than 40 miles. We made 30 miles less leeway than calculated.

Power was our next problem to solve. After the storm, our solitary battery was stone dead. Without running lights or a VHF radio, we were concerned about ships at night. We tied a kerosene lantern to the mast to illuminate the sails, but the effect was imperfect. The problem was the solar panel. Water had found its way between two of the cells, shorting out a connecting “wire” (actually a thin strip of metal film).

My motto is to try fixing anything that’s broken. I may not always fix the problem, but I usually learn something about how things work. I figured in this case I might as well take the panel apart since I couldn’t break something that was already broken.

With nothing to lose, I carefully cut away a small square of the solar panel’s rubber backing, exposing the corroded metal film. All I needed to do was solder a piece of wire across the break. But with no power, I was unable to electrify my 12-volt soldering gun. I fired up the kerosene stove, held the tip of the soldering gun in the flame, then ran aft to the cockpit while it was still hot. The repair worked. I smeared silicone over the gash. That panel lasted another four years.

After 16 days at sea we reached Fiji. Or as Jaja put it, we reached Fiji after one-twenty-secondth of a year. Everything aboard was black with



mold. The ideal environment for growth developed after the storm. Conditions had remained rough, obliging us to keep hatches closed, but the air temperature went from 50 to 75. The cabin transformed itself into a mire. In Fiji we scrubbed and cleaned for a week. At one point we cleaned mold out of Duplos (large-sized Lego bricks) using cotton swabs.

During the cleanup a new euphoria began to seep into our psyches. Things hadn't gone the way we anticipated after leaving the coast of New Zealand, but we had dealt with our situation. By taking responsibility for our decision we raised the bar of our tolerance.

**“SELF-RELIANCE” IS A MIND-ALTERING DRUG. IT MAKES YOU FEEL SUPERHUMAN.**

Three years later, after roaming around New Caledonia, Australia, Indonesia, and the islands of the Indian Ocean, we rounded Africa's Cape of Good Hope. Shortly after Christmas, 1994, we left Cape Town for the long haul across the South Atlantic to the Caribbean: 5,200 sea miles. We made two stops: one at Saint Helena Island, the other at Ascension Island. The final leg between Ascension and Barbados would be 2,800 miles. Our longest passage to date. The prospect excited us. Every passage develops a personality of its own. The longer the passage, the more subtleties that get built into the fabric of shipboard life.

We could have made stops in South America to shorten the sea time, but that meant more coastal passagemaking. Chris and Holly were ages 3 and 4. Experience had taught us that coastal hops with children were more fatiguing than offshore passages. Chris and Holly fell in love with every place we visited and never wanted to leave. It took them several days to acclimate to the motion, both physically and mentally. Overnighters were tough.

Our 28-day passage between Ascension and Barbados was one of our best experiences. The wind never blew above 20 knots, and the tempera-



**Anchor swallowed in Maine? Don't count on it as a permanent state of affairs. Dave and Jaja Martin are giving their kids time to attend public school and room to run around, but the wanderlust lingers. Lined up for a self-portrait, they are: Chris, Dave, Jaja, Teiga, and Holly.**

deliver on our own. The impetus behind our deci-

ture never fell below 75. The passage was symbolic. It was the final leg of our circumnavigation. We had departed Barbados seven years earlier as high-energy newlyweds; now we were where-did-all-that-energy-go parents. Our travels had taken turns beyond comprehension. We foolishly believed that after completing this voyage we would be “adventure-sated.” Dream accomplished.

The euphoric high of completing our circumnavigation in Barbados shifted unexpectedly to a different sort of euphoria five weeks later. On St. Maarten it was confirmed that Baby Number Three was on the way. We made our way northward through the Turks and Caicos, Bahamas, then up the U.S. East Coast. Eight months later, *Direction* was tied to a dock in a quiet North Carolina marina. Although seven years of voyaging were “officially” over, a new journey was just starting.

We had logged 15,000 miles during the last year and a half of our circumnavigation. That's an accumulation of four months at sea listening to the wind, watching the sky, changing sails, finding islands, and above all, being together as a “unit.” We were connected to nature the way mammals are meant to be. We did not question our instincts. We lived how we wanted, not in a way we thought others would approve — or disapprove — of. Upon reaching North Carolina, our senses were not jammed with preconceived notions of “proper behavior.” Whatever that is.

Chris had been a hospital birth, and Holly had been born at a friend's house with the assistance of a midwife. Baby Number Three we would

sion was wanting our next (and last) child to have a special bond with *Direction*. Plus, Jaja was most comfortable on the boat.

Birthing our child without a doctor calling the shots was a huge responsibility. So we bought books and medical journals. We extinguished the “glamour” by educating ourselves on the problems we might encounter. A few friends knew what we were up to, and they were sworn to secrecy. We needed positive input, not do-gooders shouting, “You can't do that! It's unsafe! Irresponsible! Weird!” Although familiar with that attack (anyone who goes cruising automatically has some resistance to it), we didn't want to spend energy fending off criticism.

On a cold January morning in 1996, Teiga Calypso opened her eyes for the first time under the dim cabin lights. Holly cut the cord. The five of us filled *Direction* to capacity. The cup was full.

**NOTHING IS IMPOSSIBLE WHEN YOU BELIEVE IN THE IMPOSSIBLE.**

For us, living in a rented house in Oriental, North Carolina, was similar to sailing into the doldrums. Our sails hung lifeless, and the horizon stretched on for eternity. I had a steady job, we owned a car, and friends and family came to visit. We had a phone, a fridge, a washer and dryer, and hot running water. We had bikes, a stroller, and Rollerblades. We had all the “stuff” of success, but something was missing. We missed the thrill that we derived from taking chances, living for the moment, and making do.

The dreamed-of suburban life that had once seemed appealing now just

tested our patience. I was earning more money each week than I could earn doing odds jobs while cruising, but we were slipping backward. Rent, car insurance, electric bill, phone bill, water bill. When Jaja and I first set out on *Direction*, \$5,000 a year was ample. Near the end of our voyage \$8,000 was enough. The chief reason our voyage lasted seven years is that we spent on average six months working and six sailing. I varnished, fiberglassed, and did commercial cleaning, house carpentry, and boat carpentry. There was always a job when the coffers ran low. In fact, we'd made enough money in New Caledonia and Australia to complete the journey in one final leg.

Coping with a newborn on land had stolen our breeze. Funny how it never happened on the boat. This was another one of those transitional times. We had assumed that "settling down" was the natural course of events, the next leg in life's journey. Instead, we felt like seaweed at low tide, exposed and out of our element.

Our next decision seeped into our pores steadily and surreptitiously. We looked at each other across the breakfast table one morning and, without saying a word, agreed it was time to go. With a baby and two toddlers our lives would be richer on a boat than they would be in suburbia.

A year earlier, when drifting across the equator, Jaja had talked often about Iceland... about how exciting it would be to circumnavigate that country. Those musings were the catalyst for what would follow.


Teiga was 6 months old when we found *Driver*, a 20-year-old boatyard derelict. I offered half the asking price, and she was ours. A yearlong refit

transformed her into a oceangoing family dwelling. Jaja and I made a transformation as well. Our apathy disappeared. We were back in our element.

What began as a summer trip to Iceland evolved into a five-year odyssey. The apex of the voyage was sailing to the pack ice at 79° 50' N. The Arctic winters aboard *Driver* were a welcome contrast to our years in the tropics. The hardships we chose to endure in the far north were so rich with life that we did not notice the life was difficult — although everyone kept telling us that it was.

The *Driver* voyage began with question marks but ended with answers. During our years in Iceland and Norway, the Scandinavian culture revealed a way of life that we'd been seeking but hadn't recognized. Our friends there lived in modest houses with nature out the back door. A concurring theme was to "make do with less and spend time together as a family." This was our boat philosophy.

Living in a Maine forest is a radical contrast to the open horizon that has called to us all these years. But as I sit here at my sun-powered computer and view the sea of trees that surrounds us, I know that, once again, we are going down the right path.

For a while, anyway. 

## For further reading ...



*Into the Light*, by Dave Martin, tells of the family's voyage to Iceland and Norway. It's available at <http://www.goodoldboat.com/bookshelf.html> or by calling 763-420-8923.

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# The case for a gallows

*It's not traditional on a catboat but it sure looks salty*

by John Butler

**W**ANNABE WORLD CRUISERS DOTE on their alter egos, looking for ways to make them ever more perfect, capable of meeting every demand and whim of that dream voyage. Might a boom gallows make your South Pacific odyssey just a bit more perfect or at least enhance that weekend cruise across the big lake?

Although my boat will likely never leave her lovely inland lake, she never lacks continuing improvements. One was the addition of a boom gallows. Since she is a wooden one-off Cape Cod Catboat, circa 1963 and finished bright, any addition had to be carefully designed, skillfully built, and lovingly finished.

Before ordering the handsome finished product from my local sailmaker-cum-boatbuilder, I needed to convince myself that *The Old Cat* needed one. More importantly, did I need one and *why*?

Fond memories often intrude into rational decisions. I have fine, if faded, memories of my first good old boat, the *Maleta*, a Matthews Motorsailer, a 1920s or '30s vintage. About 26 feet long and fully equipped, she was this teenager's home at night. Each day she took summer tourists sailing on Lake Michigan's Green Bay, offering quiet relief from the waning days of World War II.

My fondest memories are those of courting a young lovely with long auburn tresses aboard the old motorsailer. Brave little soul, she never did really take to boating while heeling, but at least she still takes to me after 59 years.

The *Maleta* had a boom gallows, and the imprinting began. After a lifetime of sailing a wide variety of sail-



*The Old Cat* at her dock, furled sail on the boom gallows. Note the boarding steps on the rudder and transom.



In the summer of 1946, I first sailed with a boom gallows on *Maleta* and courted my future bride.

boats, I decided I needed to sail with a boom gallows once again. But first I had to justify all the work and expense.

## Nine good reasons

Very well, then. Here are nine reasons for a boom gallows:

**1** The basic purpose of the boom gallows is for parking the boom and furled sail (and gaff) when not sailing. A boom crutch does that, but not as well and certainly not with as much class. A gallows is the perfect place. If you plan to trailer your boat, the gallows makes a great place to store the aft end of the spars while on the road.

**2** Safety should be a prime consideration for any equipment that is added to a sailboat. A cardinal rule of catboat sail-

ing is to set a reef before you need it, even before you may *think* you need it. Even then, reefing down 270 square feet of canvas on my small cat can be a demanding task, and a boom crutch isn't always up to those demands.

**3** One of the signature characteristics of Cape Cod Catboats is their very long booms extending well beyond their transoms, a far cry from today's rule-breakers with booms shorter than their whisker poles. Besides reefing, there is removing and installing the sail and cockpit covers, adjusting the outhaul for varying winds, or altering the boom lacing. Each requires leaning far over the transom, an activity that is not easy with a fully functional balance system. A form of stroke 27 years ago left my balance severely impaired, so I need all the help I can get. The gallows provides physical support when I'm working aft of the transom.

**4** My habit when sailing is to sit at the back of the cockpit, facing forward, while leaning against the high cockpit coaming. This habit has already led to the installation of a steering wheel, a



device I previously derided as “yachty.” Heck, even those huge, 8,000-hp Mississippi River towboats (pushers) have tillers. With my wheel, I now could sit as I wished, but the back support of the coaming was less than ideal. When inclined aft a bit, the nearly vertical gallows frame makes a fine backrest.

**5** I had a boom-supported cockpit cover to keep the sun off the brightwork. Sometimes, when anchored overnight, I put the cover up to extend my cabin space when rain looks likely. A boom gallows broadens the aft end of the covered area, making a more usable foul-weather cockpit. It provides an additional ridgepole for a cockpit awning or Bimini.

**6** When motoring into a narrow cove for a night’s anchorage, I sometimes stand on the cockpit seat, steering with one foot, looking ahead for submerged tree stumps. (My sailing area is a Corps of Engineers impoundment; many trees were flooded to make cover for the fish.) The support of a sturdy boom gallows is quite comforting when standing on one foot while steering with the other.

**7** World circumnavigators Lin and Larry Pardey’s cutters both have a very functional boom gallows. I suspect one use was for safety. As a youngster already envisioning his ideal boat, one of Larry’s three qualifications was the ability to carry a hard dinghy on deck. *Seraffyn’s* gallows is high and wide enough to ensure that the boom could never crush her 6-foot 8-inch dinghy stowed over the cabin trunk.

I had a safety concern similar to Larry’s: when either of the two hal-yards (peak and throat hal-yards on a cat) is slacked off, the boom will immediately drop. My boom is Sitka spruce, 19 feet 1 inch long and weighs 40 pounds. (*The Old Cat* is 18 feet 6 inches overall.) If any part of the complex halyard system fails when close-hauled or coming about, anyone sitting under the boom would be in for a rude awakening at the very least. So

I agree with Larry: provide an extra measure of safety for gear and crew.

**8** Of course, you can’t mount a radar or other electronic equipment on top of the gallows; that area is reserved for the boom. But some boats use the aft side to mount a stern light, a sort of minor eighth reason. To augment that flimsy eighth, I find the gallows very handy when coming aboard after a swim. My 85-pound rudder is hinged to the transom with three heavy bronze pintles and gudgeons. Like many cruisers, I have boarding steps on the rudder and transom. Envision climbing a common house painter’s ladder with your hands at stomach level: it’s awkward. The higher hand-holds of the gallows are great.

**9** I could add a ninth reason: gallows look salty. Unfortunately, my cruising area is known for Wal-Mart’s headquarters, major trucking lines, and massive chicken and turkey farms, not saltwater circumnavigators. But I knew I would appreciate having a boom gallows, and that’s enough to validate that ninth reason for me.

### Not traditional

Not all of *my* reasons apply to every boat, but I had enough to justify my need for a gallows. However, did *The Old Cat* need one? Boom gallows aren’t traditional on Cape Cod Catboats. The original design was for commercial fishing, and the design has remained virtually unchanged for 150 years. Some pleasure sailors do cruise in catboats, but I’ve heard of only a few with gallows.

I also knew that every coin has a flip side. What are the disadvantages of a boom gallows? Installing a prototype was the only way to find out. The obvious disadvantage is one of additional weight and windage. This might be a consideration for some sailors.

My first model was a length of 1- x 4-inch pine, cut to three appropriate lengths, the top bolted to the uprights and the resulting crude frame clamped to the coaming. A half-circle saddle in the middle of the top was the

boom’s home base. The width of the crosspiece was governed by the width of the cockpit coaming, and the height of the uprights was selected to provide the same height of the saddle as with the boom crutch.

With the sail properly triced up, the boom cleared the crutch as well as the head of anyone sitting in the cockpit

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***The Old Cat’s* gallows and wheel, below at top. Brass plate at the mortise-and-tenon joint, center. The gallows’ saddle with leather and brass covering the tacks, at bottom. Note the bungee cord with the toggle to tether the sail. It notches in the bottom of the gallows. A later version has a longer bungee cord with two toggles for “easy” and “tight” securing.**



# “After a lifetime of sailing a wide variety of sailboats, I decided I needed to sail with a boom gallows once again.”

by several inches. One of my early “improvements” to *The Old Cat* was the addition of a nylon strap across the top of the boom crutch. When I lowered the sail or set a reef, the strap effectively held the boom to the crutch. To accomplish this task on my prototype, I ran a length of bungee cord through a hole in the crosspiece and through a short section of 1-inch dowel (see photo on Page 37).

## Holds it firmly

With the boom in the saddle, I bring the cord over the boom and down into a notch in the underside of the crosspiece. The tension on the bungee holds the toggle firmly in the notch.

I sailed with it a few months and found I liked everything but the propensity of the mainsheet to foul on the gallows as I came about. Adjusting the

location of the forward block minimized that.

In addition, the narrow width (3 $\frac{5}{8}$  inches) didn’t provide as much backrest as I wanted. So I progressed to my second prototype. I used 1- x 6-inch pine this time.

Like on the old *Maleta*, and the same on *Seraffyn*, this prototype’s top had three saddles so the boom could be secured on either side of the centerline. This would make it easier to stand at the helm while navigating confined areas under power.

I sailed with this gallows for some months, wanting to be absolutely sure that there were no undiscovered disadvantages to scuttle the project and to be just as sure that eight of my reasons were not rationalizations for the ninth: that a well-designed and built boom gallows looks great.

I soon found that I didn’t use the two outboard saddles. Long before this evolution, I had designed a second boom crutch, long enough when installed for the boom to be well above my head while powering into a narrow winding cove for a night’s anchorage. Because the boom crutch fit into brackets on the aft side of the cockpit coaming, I had to be sure my prototypes didn’t lean aft too far to prevent installation of this crutch. As things worked out, the wedges between the bottom of each gallows leg and the coaming, when sized to make my backrest lean back comfortably, were just right to accommodate that long crutch (see photo at bottom left).

## Reasons justified

In the end I decided (rationalized is probably more honest) that I really *did* need a proper boom gallows. My reasons were justified, the disadvantages were minimal, and one would fit and look very nice indeed on *The Old Cat*.

My sailmaker friend, Matt Ross, had already agreed to build it. With his artistic eye, he refined my plans to make the overall shape harmonious with my boat’s coaming and general shape. Matt still had some of my heavy mahogany 2 x 6s at his shop, leftovers from previous jobs, and he used one to construct

the frame. Finished out, the uprights and top are 5 $\frac{3}{4}$  by 1 $\frac{3}{4}$  inches. The crosspiece is 47 inches wide and stands

33 inches above the cockpit seat at its lowest points.

Concerned with moisture entering exposed and open vertical grain and causing rot, he joined the uprights to the top with mortise-and-tenon joints. With his cabinetwork quality, only the change in grain pattern discloses the joint. The resulting glued joint is strong, but Matt knew I would lean heavily on the crosspiece, so he fashioned four heavy brass plates to support the joints. To save money, I had the completed frame delivered unfinished. I sanded, sanded, and sanded it some more until the entire assembly was as smooth as a baby’s bottom. An obsessive number of coats of polyurethane varnish gave the mahogany a beautiful color and mirror finish. The brass plates were likewise polished, then protected with clear acrylic.

Securing the frame to the boat was straightforward. Four  $\frac{3}{8}$ -inch lag screws pulled each upright snugly to the coaming, all properly sealed against the elements. To cover the eight utilitarian hex heads and large washers, I made two covers from my scrap pile of mahogany. Hollowed out on the business side, they hide the screws. A single screw holds each cover to the aft side of the coaming, and that recessed screw is covered with a plug that is easily removed, should access to the lag screws be required (see photo at top left).

## Fine leather

Well-designed crutches and gallows have sailmaker’s leather lining the saddle to protect the boom’s finish. My ditty bag yielded a fine scrap of leather left over from other projects. I soaked the leather in water and stretched it to cover the saddle, tacking it in place. When the leather dried and shrank, it was tight and wrinkle-free.

The tacks and edges of the leather were unsightly, so I used semicircles of the same heavy brass to cover them. This gave the gallows a shipshape and finished look (see photo on Page 37).

I also tacked a patch of the sailmaker’s leather to the underside of the

**Continued on Page 82**



**This cover hides the mounting bolts.**



**The base of the gallows and wedge to incline it aft.**

# Bingham Boat Works

## profile

**I**F A TIME TRAVELER WERE TO drop into Bingham Boat Works today, he or she might well wonder what decade it is. The chandlery and many of the boat projects underway definitely speak of “today,” but the wood shop and several other areas speak of “yesterday.”

Bingham Boat Works was founded in 1930 in Marquette, on Michigan's Upper Peninsula not far from the shore of Lake Superior, and it has grown over the years. But since four generations of Bingham's have been operating on the same property, a comfortable sense of yesteryear has settled in. Not much changes if it doesn't have to. The basic tools and types of skills required have not changed appreciably, although high-tech is the name of the game these days.

In fact, that's what will impress time travelers the most as they tour the operation: the range of skills needed in order to offer a full-service boatyard. Joe and Thad Bingham (generations three and four), their wives, and a handful of employees possess skills in electrical work, plumbing, canvaswork, metalwork, painting, fiberglassing, woodworking, boatbuilding, boat designing, mechanical work, and other crafts. They must be able to haul, transport, winterize, repair, refurbish, modify, prepare for launch, and launch sailboats and powerboats. Between them, they must also have the skills necessary to run the business side of the operation.

### Changing activities

The Bingham's keep four people employed full-time all year round, although the activities of each person's job change from day to day and from season to season. A few additional hands are always welcomed and are cheerfully employed, particularly during the busy times.

Boaters bring power and sailboats from all over lakes Superior, Huron, and Michigan for the Bingham's indoor storage and winter projects, such as paint jobs and major overhauls. As boats change hands, the new owners hire the Bingham's to add teak decks, repair fiberglass damage, or make

*Four generations of family expertise benefit this Lake Superior boatyard*

by Karen Larson

**Tristan, a Mobile 27.8 Cruiser, decorates the dock above. The Bingham's modified a Fred Bingham design and have just launched the fourth of these trailerable cruisers.**

modifications to cabinetry or upholstery. “People always change the boats they buy,” Thad says.

Other boaters want the full service that they can get at the Bingham's yard year after year. “They shake your hand at the dock and they say, ‘Here's my to-do list. See you in the spring,’” Joe says. Not that he minds. Boatwork that lasts through the winter is the bread and butter of the operation.

Things were different back in 1930 when Joe's father, uncle, and grandfather started a business they called C. W. Bingham and Sons. His grandfather had a pattern-making shop on New York's Long Island Sound building bronze patterns. It's a long story, but both senior Bingham's, father and son, wound up in Michigan working first to help build and then to maintain a large vacation lodge. They worked there for 14 years until the wealthy owners of the lodge experienced the devastating stock market crash of 1929 and laid off the staff. The Bingham's began offering their skills constructing buildings and wooden skiffs. Their first boats, 14- to 16-footers, were a type of flat-bottomed fishing boat common to the area.

### Homework and shopwork

By the time young Joe Bingham was in grade school, he was firmly entrenched in the family business. “I'd do my homework and my chores, then go to the shop and work,” he recalls. He swept the floor and learned the business, as he says, “pretty much from the ground up.”

Later he moved to Florida and worked for Hunter Marine for several years. He began on the production line finishing the trim on the 37-footer until Warren Luhrs' successful circumnavigation in a Hunter 54 created great public interest in that boat. Joe recalls that the company built two hulls with different interiors to take to the winter boat shows.

Once the orders came rolling in, he was moved to the research and development section to set up the production line for building the interior for the 54 in a third and different configuration. But when his father died, Joe returned to Michigan to take over the family business.

Sometime in the 1950s, the family changed the company name to Bingham Boat Works. The operation re-

JOHN HUNTLEY







The wood shop, above left, still has many of the tools that ran just as well in Grandfather Bingham's day, but he wouldn't recognize many of the coatings and compounds, above right, used these days in the up-to-date shop. Joe and Thad Bingham show one of their early Sea Flea tenders, below left. They've built this popular design in several variations over the years. Thad ponders the possibilities of a fifth generation running Bingham Boat Works, below right.

mains on the same property, although boat-storage buildings, a canvas shop, and other buildings have sprung up over the years and a Travelift was added to move boats around the property.

These additions were evolutionary. What was revolutionary was the introduction of a new boatbuilding material: fiberglass. "My granddad said he wouldn't sail in anything that was poured out of a bucket," Joe says with a wry smile. Time has a way of marching on, however, and soon the boatbuilding family was building fiberglass boats of their own design.

### Popular design

Their Sea Flea tenders are a particularly popular design that can be built in several variations. These popular

little 8-footers began life as a winter project for the Bingham. The first dozen or so, Joe recalls, were built with the deck and seats as a one-piece mold. But that was heavy. So the next configuration had the seats molded into the boat with a separate deck.

telling you it should be changed, you change it," he notes. Building what the customers want is a simple business decision.

Joe has built a series of wooden boats for himself and the family, mainly during the slow times in the winter.

His first boat was a clinker-built 15-foot Swampscot dory, then came an Atkins gaff-rigged 21-footer and another dory, an open 20-footer.

A couple of powerboats followed: a 14-foot outboard and a 21-foot inboard. Most of these boats were sold as another project was begun.

The 28-foot sailboat that came next has remained in the family for years, even in spite of a few recent summers when she was not launched all season due to busy workloads. "We sailed

“Still, he says it's fun. 'In fact, I tell people that I don't go to work,' Joe says. 'I just go play all day.' What more could anyone ask?”

These days the boat comes without a deck. One seat is foam-filled, while the rower's seat is made of wood. The gunnels take advantage of a plastic Trex-like material that looks like wood but requires no maintenance.

Joe notes that the Sea Flea rig also changed over the years due to customer requests. "If enough people are





**The Ted Brewer-designed Quiet Time emerges from a pile of wood, above left. She is the largest stitch-and-glue-type boat the Bingham have built so far. The family's delightful collection of antique motors, above right. Four generations of Bingham have run Bingham Boat Works since the family company was founded in 1930. In those 75 years the needs of boaters have changed. These days the company offers indoor boat storage, below left, and a plethora of marine repair and upgrade services for boaters of all descriptions.**

that one for quite a few years. I have a couple of kids who would hang me if I sold that boat," Joe says. (Ah yes, the family "good-memory boat.")

### Trailerable weekender

Later Joe was looking around for a project boat, a large trailerable, something large enough for a family weekend. He discovered a design by Fred Bingham (no relation) in one of the magazines of the time. Called the Traveler, it was a full-keel traditional-looking craft with an overall length of 31 feet, a length on deck of 27 feet 9 inches, and a draft of 3 feet 11 inches. He called Fred, who sent him the drawings and study plans. Joe made many interior modifications and a few exterior changes and worked on the boat as time allowed. He built the plug with Seaflex, a stable fiberglass material, and built the molds using that first plug, which was later discarded. Final-

ly he built the first of what have so far been four fiberglass sailboats from the modified Fred Bingham design. The fourth was delivered this spring.

By the time the first was launched, Fred Bingham, well into his 80s, had closed his business. Joe decided to name the modified version created by Bingham Boat Works the Mobile 27.8 Cruiser, emphasizing its trailerability and cruising attributes. He and the family spent parts of one summer testing and enjoying the first of these cruisers on brief vacations before building the next one.

Next Joe and Thad decided to build a larger stitch-and-glue boat. Naturally, they'd built a variety of prams and dories using this method over the years. But this one would be different. They found a Ted Brewer design for a 34-foot powerboat in a copy of *Boat-builder* magazine and phoned Ted, who sent a drawing and study plans


for the boat he named Quiet Time. They purchased the plans and set to work. That boat's spent a couple of winters in the shop making slow progress; paying jobs have increased to the point that they're not looking as

often for something to fill a few winter hours here and there.

### More feasting

"It's feast or famine," Joe says, glad to say that it's been more of a feast the last several years. But it does keep him busy. Still, he says it's fun. "In fact, I tell people that I don't go to work," Joe says. "I just go play all day." What more could anyone ask?

These days Thad works side by side with Joe, and he's still using some of his great-grandfather's tools. When asked if he worked his way up in the business sweeping floors, like his father before him, Thad wonders aloud whether he's working up or sideways. One thing is certain, he decides with a laugh: as he has assumed more responsibility, "the headaches have gotten bigger," he says.

The obvious question is whether the fifth generation will be there to carry on the business. Thad has two daughters who do some woodworking and, yes, sweeping up around the shop. "The seeds are planted," Joe says. And there are other family members who might yet get involved. Who can say? The business will continue to evolve as technology and boater demands change. What the future will bring, only the time traveler knows for sure. 



## Resources

### Bingham Boat Works Ltd.

Star Route 550, Box 58  
Marquette, MI 49855  
906-225-1427



## *This proven safety feature is now practical for all sailboats*

*by Don Lauener*

**R**ADAR IS AN ACRONYM FOR **R**ADIO **D**ETECTING **A**ND **R**anging. A marine radar is used to determine the distances and azimuths of landmasses, boats, and buoys by measuring the time between the transmission and return of an electromagnetic microwave signal that has been transmitted and reflected back from the target. In some cases this return signal may also be retransmitted by a transponder on the target, which is triggered by the original signal.

A single, rotating, highly directional antenna is used for transmitting and receiving. The size of the antenna and the frequency of the radar determine the beam width of the transmitted signal, with a very narrow "horizontal beam width" being optimal. This antenna, which rotates through 360 degrees, may be an open array, which presents the most precise display, or a rotating antenna enclosed within a radome (preferable for sailboats since there is no rotating antenna to foul the running rigging). Some radomes are as small as 12 inches in diameter — but as the diameter of a radome becomes smaller, the resulting display is less precise.

Since radar frequencies are nearly line-of-sight transmission, the height of the antenna and the height of the target determine the radar's maximum range. The radar transmits very short, yet very high-powered, bursts of microwave energy thousands of times a second. Between the transmitted bursts, the radar is in the receive mode for the reflected signals returning from the target. Due to the high intensity and frequency of this microwave beam and the fact that the vertical beam width is much greater than the horizontal beam width, the radar's

antenna should not be located where the microwave energy will be directed toward any people or animals on board or toward other onboard antennas, such as a GPS.

Radar signals can be attenuated by rain and, to a lesser extent, fog. The higher a radar's output power, the greater its ability to produce a usable return signal under these conditions.

Although a radar's power is rated in kilowatts, this

power level is only transmitted for short periods (usually considerably less than a microsecond), so a modern 12-volt radar unit does not consume much overall power. In addition, these units take up very little physical space. Even the smallest

of boats, for an investment of less than \$1,000, can now have the security of a radar when the fog rolls in.

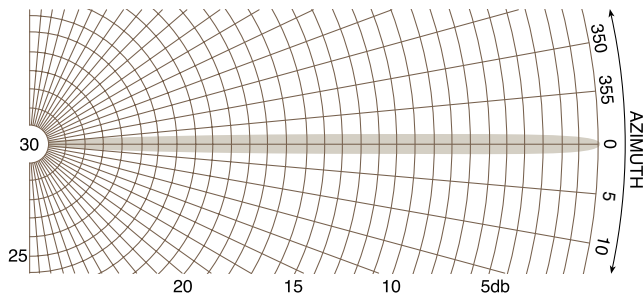
*"Even the smallest of boats, for an investment of less than \$1,000, can now have the security of a radar when the fog rolls in."*

### **Operational controls**

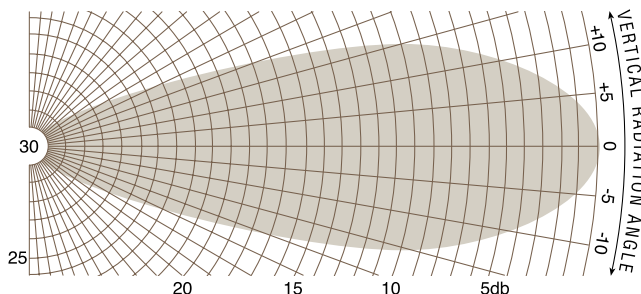
All modern radar units feature automatic and manual controls. Usually the automatic mode results in the most satisfactory display, but manual adjustments are also available and can be handy under special circumstances. The range, of course, is operator-selected.

### **Dual-range displays**

As the name implies, a dual-range display allows the simultaneous display of two ranges on a split screen. Typically this would be a detailed display of the immediate area and a long-range display that allows a sailor to keep a watchful eye on what is approaching in the distance. The operator has the option of selecting the range for each display.



**The horizontal beam width of a radar is very narrow, and is constantly rotating through 360 degrees (with the exception of some specialized radars that scan only a prescribed sector).**



**The vertical beam width of a radar is broad, so close targets, as well as distant ones, will be covered. The radar's antenna should not direct microwave energy toward people or animals.**



### Multi-function displays

In the past few years there have been incredible changes in marine electronics. One of these is the multi-function display, which can provide two or more of your boat's navigational electronics on one screen. Multi-function displays allow you to select and view radar, GPS, an electronic chart plotter, depth sounder, and other onboard electronics on one display unit. Usually these displays use a wide, split screen.

Although seldom used except aboard the largest of sailboats, networking allows more than one multi-functional display in different locations, such as at the helm or in the cabin at the nav station. At each location, the display unit can access and control any of the functions available in the system. Most marine electronic manufacturers have their own proprietary networking systems and equipment that allow for future expandability.

### Radar overlay

One of the biggest recent advances in today's radars is the chart/radar overlay, in which the radar display is

overlaid on a GPS-controlled electronic chart, eliminating many of the problems associated with trying to monitor and interpret separate displays.

### Misinterpretation

With any radar, it's of vital importance to spend time using your radar on days with good visibility. It's best, when the visibility is good, to use the controls and display options while comparing the appearance of various types of targets on the screen with those you can see.

If you wait for a foggy day to use the radar for the first time, you might be better off not having a radar on board at all. Even with trained, professional crews, many ship collisions have resulted from misinterpretation of the radar display — especially in the early days of radar's use at sea. Notable were the collisions of the *Neceto de Lorrinage* with the *Sitala* and the *Crystal Jewel* with the *British Aviator*. The collision of the *Andrea Doria* with the *Stockholm* in 1956, which sank the *Andrea Doria*, occurred even though both vessels were monitoring (but misinterpreting) their radar displays. ⚓



# Tall ships

photography by  
Chip Wallace









# The world is their kingdom



***Cruising royalty  
Larry and  
Lin Pardey  
continue their  
adventures —  
and encourage  
you to have  
your own***

by Cindy Christian Rogers





Larry and Lin Pardey aboard their beloved *Taleisin*, at left facing page. A rare shot of *Taleisin* (foreground) and *Seraffyn* sailing together in 1999; *Seraffyn* is now owned by Wayne and Norma Tillett.

STARK JETT V

**M**EETING LARRY AND LIN PARDEY can be a bit intimidating for a weekend-and-vacation sailor, awed as you are by the accomplishments of this much-fêted cruising couple. After sailing for more than 35 years and to 72 countries, after describing their experiences in 10 books and five videos, after doing it all in boats no larger than 30 feet with no engines — the Pardeys are arguably the reigning king and queen of cruising sailors. But then you meet them... and these venerable cruisers prove to be genuine and generous souls who talk unassumingly about their adventures — and passionately about how you can have some of your own.

Their story remains fresh and inspirational, a tribute to their delight in sharing it. You feel that no matter how many times they have described their exploits, they now are conveying them to *you*, even if you never intend to set sail for Gibraltar or Bora Bora. They speak swiftly and spiritedly, interlacing sentences in a rhythm born of a

have each sailed more than 170,000 miles, circumnavigating the globe twice, once each way, in *Seraffyn* or *Taleisin*, the 29-footer they built over a several-year period and christened in 1983. They have been honored worldwide with awards, featured in newspapers and boating and general-interest magazines, and invited to speak at more than 300 seminars in seven countries. Perhaps their greatest sailing achievement came in 2002, when they rounded Cape Horn against the prevailing winds, for which they received the Ocean Cruising Club Award of Merit.

Other sailors have covered as many miles, charted ambitious itineraries, or achieved feats as impressive, though the number is few. What sets the Pardeys apart is their approach, summarized in their mantra: “Go simple, go small, go now!” They are champions of the concept: they leveraged their original meager cruising kitty to spend a year in Mexico, then set off for the Panama Canal, earning addi-

“What sets the Pardeys apart is their approach, summarized in their mantra: ‘Go simple, go small, go now!’”

long camaraderie: it’s not so much that they complete each other’s thoughts as that they represent two variations of a single voice. When Lin argues, for example, that “the perfect sailboat is the size any single member of the crew can handle alone,” Larry chimes right in: “A 400-square-foot main is probably the largest that any person alone can hoist.” Lin may lead off most conversations, but Larry is hardly reticent, and they tell their tales with an almost tangible energy. You can just imagine them on a boat, undertaking tasks with the same symbiotic zeal.

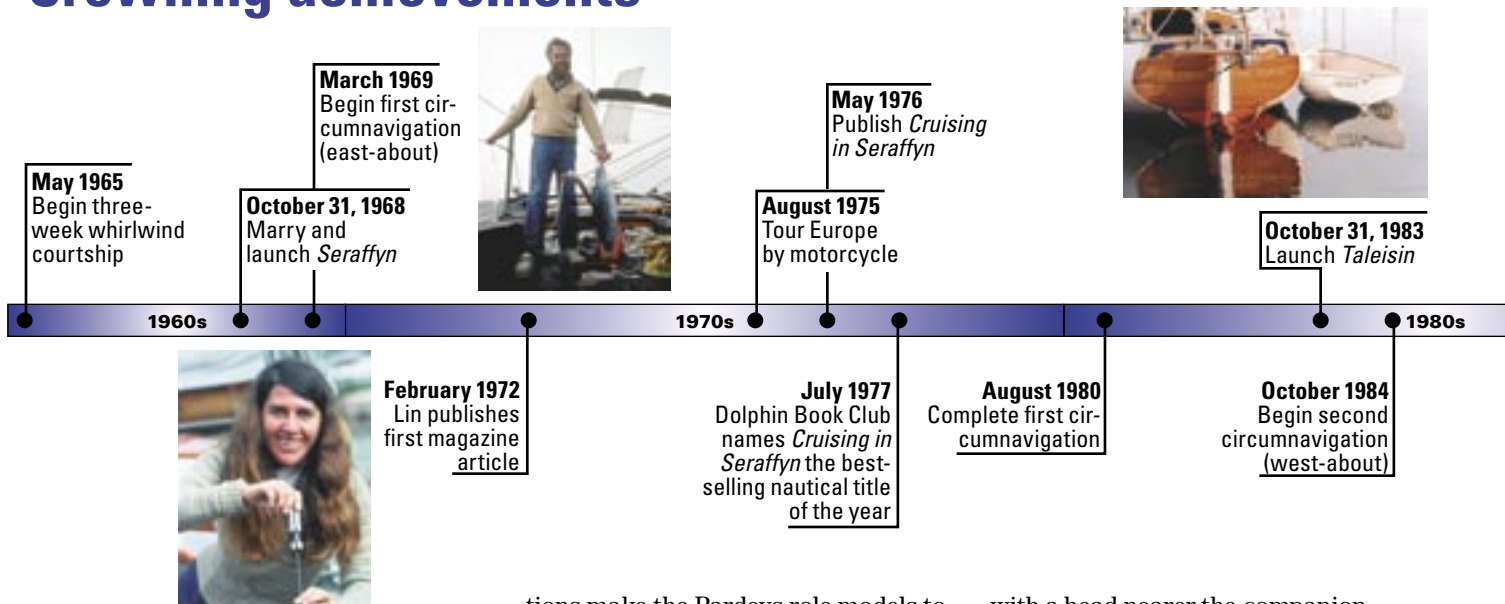
They remain so enthusiastic about the cruising lifestyle that it’s hard to believe they’ve reached their 60s, but a quick check of the math confirms it. They prepared for their first cruise as 20-somethings back in the mid-1960s; in 1968 they married the same day they launched their first self-built wooden cutter, the 24-foot *Seraffyn* (see “Crowning achievements” on Page 48). Since then, the Pardeys

tional funds along the way. They have repeated the process over and over since, financing the next leg of their adventures with “freedom chips” from repairing or delivering boats — and, of course, by detailing their experiences and boatbuilding expertise in print. A letter to a magazine editor launched a successful writing career, which decades later has culminated in their own imprint — Larry says they are the “only floating publishers in the world.” Their books have intrigued more than a quarter-million readers, sailors and armchair adventurers alike (see “For further reading and viewing” on Page 51).

### **Anachronisms or role models?**

That Lin and Larry Pardey have made both a life and a livelihood from cruising has enhanced their mystique. So has their insistence — even as the size of yachts has trended upward — that smaller boats are a better choice for extended cruising because

# Crowning achievements



they are easier to handle, far cheaper to maintain, and less likely to break down. Smaller, simpler boats may even be safer, they argue, and they advise cruisers to carry less, rather than more, gear. In this age of technological wizardry, Lin and Larry's list of onboard necessities might strike many sailors as minimalistic, particularly since it contains few electronics (see "Cruising necessities" below). *Taleisin* does not carry a GPS, radar, or weatherfax; there's not even a depth sounder, though an EPIRB recently came aboard. Such convic-

## Cruising necessities

Here's what the Pardeys consider as first and foremost requirements for safe cruising, categorizing all other items as conveniences or luxuries. Not that they object to creature comforts — they do, after all, use the bilge as a wine cellar.

- Sailing skills
- Navigation skills
- Boat with a strong, reliable hull
- Mast and sails
- Rudder
- Drinking water
- Rice and beans
- Sextant and timepiece
- Multiband receiver
- A small, reliable engine, unless you sail as sport

tions make the Pardeys role models to some fellow sailors, anachronisms to others.

But whether you accept their counsel or consider it more provocative than practical, you can't deny that the approach works for them. It is a philosophy emboldened by vast and hard-won experience — and inextricably linked to their quest for a simple lifestyle, a view that can seem especially radical in the consumer-driven United States, as when Larry, for example, refers to credit cards as "chains" or Lin says that "Americans have a gene that costs them money."

According to Larry, "When we first started building *Seraffyn* ... living with her while we prepared to go cruising ... it was almost Steinbeckian. Now cruising is seen as a lifestyle market. And the market makes it harder to go cruising," Larry suspects that too many would-be cruisers don't set sail because they don't have the "right" boat, the "right" amount of money, or the "right" complement of equipment. "We want to break down the barriers," he explains. "We want people to enhance their safety onboard through building their skills rather than depending on expensive gadgets. We think it's better to use the wind and your brain and hands instead of a diesel and checkbook."

Yet even as the Pardeys espouse their views, they refuse to turn the "Go simple, go small, go now" proclamation into an edict. "Our mission is simply to get you to stop and think," Lin explains. "We may advise you to buy a boat five feet smaller than you'd been fantasizing about or equipped

with a head nearer the companionway, but if you already own a 40-footer with the head by the V-berth, we won't discourage you from cruising in it." It's a stance that can surprise you, given their reputation, until you realize what the Pardeys want most is to inspire you to go cruising ... however you decide to define it.

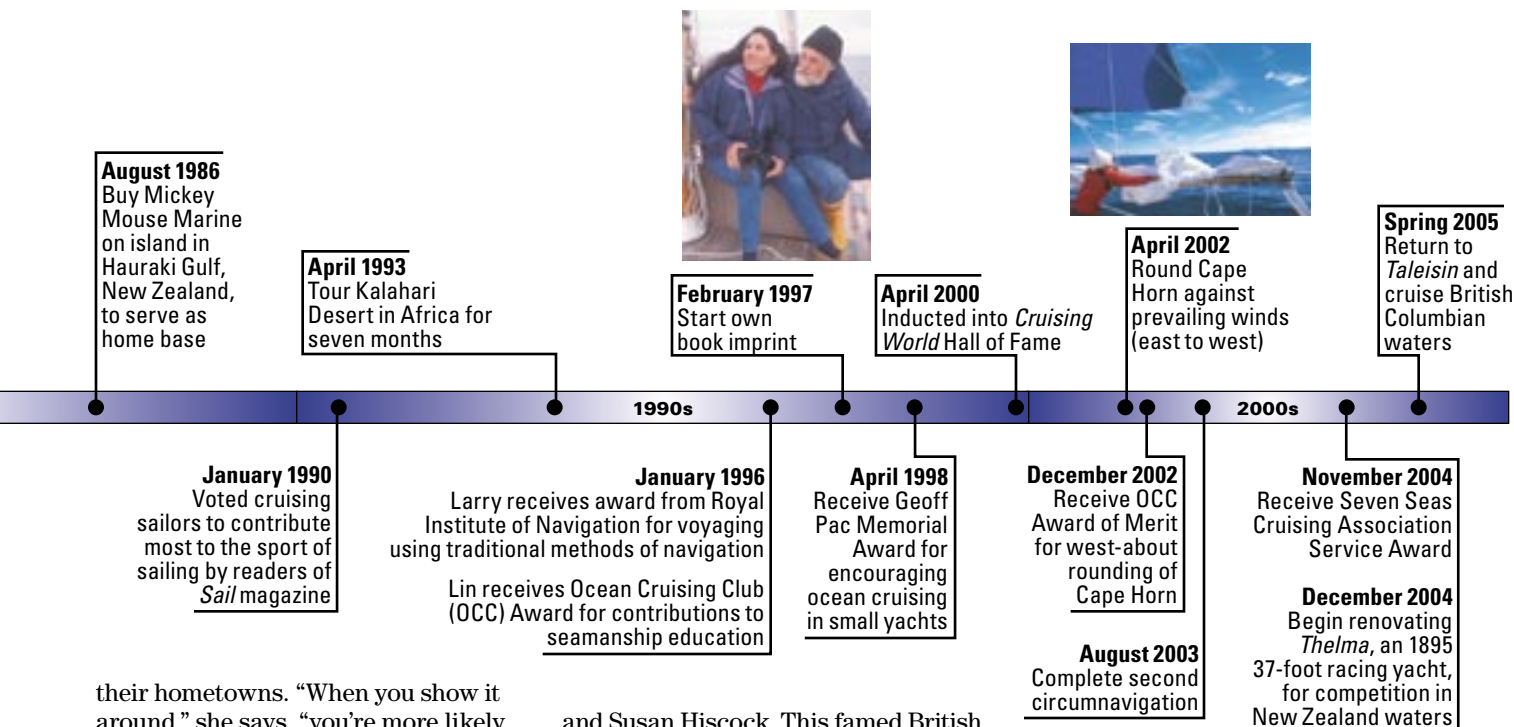
## An amazingly safe world

While many Americans have been reluctant to travel in the wake of 9/11, the Pardeys believe that cruising remains a prudent option. "It's an amazingly safe world if you go out into it with an open heart and a bit of brain," Lin says, noting that not all geographic areas have been touched by turmoil or terrorism. Her perspective — as a long-time world traveler and dual national (a citizen of the United States and of New Zealand; Larry is Canadian and Kiwi) — is that the significant majority of serious misunderstandings occur at the governmental level, not among nations' citizenries.

"Most natives welcome Americans because they welcome anyone interested in their country," Lin says. "It's Americans who have the tendency to nationalize. People abroad are curious about U.S. cruisers, sure, but to most of them, the flag you fly coming into the anchorage is at least 35th on the list of what makes you who you are."

She adds, "We find that cruisers are judged by their individuality, not their nationality. People accept you for how you accept yourself." One of her favorite tips to long-range cruisers is to carry a photo album containing family snapshots and pictures of





their hometowns. “When you show it around,” she says, “you’re more likely to become a real person to the locals.” And she recommends spending time with the people who live where you visit, rather than playing tourist or hanging out exclusively in the marina with fellow cruisers.

It also helps to try communicating with the residents in their own language. “Traditionally, though, Americans are one-language folks and are unprepared to interact with speakers of other languages,” she notes, “but it’s not as vital to know a second language as much as it is to *try* to communicate. At least try some kind of sign language. Or resort to show-and-tell.”

Lin adds that they’ve encountered few problems with officials and had trouble entering only one country. Arriving in Brazilian waters, they learned they should have obtained a visa beforehand; most countries permit you to get a visa after you arrive.

Having said all that, Lin adds that cruisers nevertheless should be cautious. She and Larry avoid known problem areas where piracy and drug trafficking are commonplace. And while they advise against carrying handguns, partly because of difficulties clearing customs and partly because they see guns more as hazards than helpers, they do carry Mace and would readily deploy, if need be, a standard onboard piece of safety gear: “A flare gun is a nasty weapon,” Lin says, “and it looks like a gun if you hold it right.”

One way, Lin observes, for concerned Americans to cruise more comfortably and securely, yet still venture far afield, is to study the routes of Eric

and Susan Hiscock. This famed British couple made several circumnavigations from the 1950s through the 1970s, favoring stays among English-speaking cultures. The Hiscocks are symbols of an era of cruising that to many observers represents a safer time, a calmer world climate. Indeed, it is tempting to consider the period between World War II and the advent of production fiberglass boats as the golden age of cruising, a time when the likes of John Guzzwell, one of Larry’s heroes, would take off in small boats like the 20-foot *Trekka*. Larry, however, points out, “Those people didn’t think of cruising as a lifestyle. They thought of it as an adventure. They didn’t expect the comforts and securities of home while exploring the world.” As for Lin, she says adamantly, “The golden age of cruising is when *you* go.”

### Go for your own reasons

“The big dream is to go to exotic locales,” Lin acknowledges, but she and Larry wouldn’t dream of suggesting you must cross an ocean to have a meaningful cruising experience. Instead, they fret that too many cruisers set themselves up to fail. First-timers, in particular, announce to friends and families that they’re “sailing into the sunset,” she says. “Many of these cruisers will discover that they don’t enjoy cruising as much as they thought they would — or they’ll miss their shore lives and families.” Then, “when they come home early,” Larry adds, “they will have failed in everyone’s eyes.”

“We know of one couple who spent



JILL DINGLE

a year sailing to the South Pacific and had a lovely time,” says Lin. “But then they’d had enough and sold the boat. ‘Why did you fail?’ they were asked. ‘You planned to sail around the world.’ But they hadn’t failed. They had had a successful cruising adventure. It just was different from the one they’d projected.”

The Pardeys make it a point not to tell anyone what they’re planning next, not even when they made plans to round Cape Horn the “wrong” way. They gave themselves permission to opt out, and if they had, Lin says, “no one would have been the wiser. We would have had a great sail to Argentina and a fresh batch of stories to show for it.”

Their best advice: go cruising for six months, rather than announce to friends and family that you’re sailing around the world. Choose a cruising ground nearer your home — the San Juan Islands, the Baja Peninsula, the Great Lakes, Down East, Chesapeake Bay, the Intracoastal Waterway, perhaps the Bahamas — especially if you’re concerned by the current world political climate.



**Never a dull moment under way: Lin steers as *Taleisin* sneaks through the wind shadow of Pico in the Azores, at left. Larry uses only traditional navigation methods, at right facing page.**

"One of our most enjoyable cruises was right along the coast of Maine," Lin says, noting that it's possible to enjoy unique cultural experiences within U.S. waters. "We met a local who invited us to Isle au Haut for a church service. It turned out the congregation met only once a month, in a 200-year-old church the community had just finished restoring, with a minister who traveled from island to island much like the ministers on horseback during pioneer days. The whole community came and cooked up a lobster feast afterward."

What's important, the Pardeys say, is to choose your own tack. But, as Larry warns, "life is a series of decisions even when you don't make them," so you may find that your indecision to leave the dock is a signal to enjoy sailing some other way. He estimates that as few as five percent of cruisers pursue the activity for the sheer love of sailing itself, reminding you that chartering, trailering, racing, and daysailing offer sailing pleasures too.

In fact, the Pardeys are joining the ranks of racing sailors: last winter, while spending the season at their home base on Kawau Island, 30 miles north of Auckland, New Zealand, they launched yet another adventure in their sailing career by buying one of the oldest racing yachts in New

Zealand, the 37-foot *Thelma*, designed and built by C. and W. Bailey in 1895. "Why did we do it? She needed us," Lin says. "And we needed a good project, an excuse to spend more time at this lovely spot. She was sitting unused with a few small problems that are right up Larry's alley. We'll get her back in full sailing condition, get to know her well, and then gradually upgrade her to a state her original builders would be proud to see."

### Following in their wake

Of course, the Pardeys will always be best known for their far-flung travels during a lifetime of living aboard. If you choose to follow in their wake, here is their advice:

**Be self-employed.** "The key to doing it our way is to be self-employed," Larry says without hesitation. "Perform small contract jobs. Don't be afraid to test your skills. Be involved in life. While building *Seraffyn*, Lin even

had a real office job for a while. But we quickly got her out of that and into her own business." Lin concurs: "Hustling for a living makes cruising more interesting. In one case we found we could live for one-and-a-half years from the proceeds of a single delivery job." Their list of cruising-compatible careers includes nursing, carpentry, writing, photography, crafts such as jewelry making, and bartending.

**Depend on your skills rather than your equipment.** "A cruising sailboat is a complex, miniature city," Larry likes to say. "It's a restaurant, a hotel, and a bus." Even though technology has made it possible for larger vessels to be singlehanded, think carefully about how much gear you are willing to take responsibility for keeping up. It may be wiser to invest in your own skills, particularly coastal navigation and sail repair. "Safety is something you *learn* rather than *buy*," Lin insists, noting that first-aid training can prove valuable and that women may benefit from taking one of the for-women-only courses now available.

**Don't cruise exclusively with a group.** "We tend to cruise as a couple," Lin says. "When you cruise in groups you spend more time — not to mention more money — on entertainment and partying with fellow cruisers. We enjoy our times with fellow cruisers, make no mistake, but we also give ourselves

***Taleisin* at anchor in the Marquesas Islands, flopper-stopper set to cut down the rolling. The Pardeys celebrated the end of their second circumnavigation here after crossing their outboard track. Though their boat is modest, the Pardeys are not without luxuries aboard, as evidenced by the table set for dinner in the main cabin (inset).**





permission to stop and just 'be.' That's a key reason we keep having interesting cultural experiences."

**Don't scrimp.** The Pardeys tend to be frugal with their freedom chips, but Lin will tell you, "We don't scrimp." And she advises fellow cruisers to not be too stingy: "The reason to go cruising is to get outside of your own world. So *do* visit local cafés, take inland excursions, and have your laundry done so you're not devoting time to it. *Do* buy art and jewelry in the countries you visit. Use them for a while, then give them away, whether to family and friends at home, cruisers you meet along the way, or friends you make among the locals."

Lin and Larry have not neglected their own creature comforts: Lin insisted on having a sitz bathtub aboard *Taleisin*, for example, and tales of their land-based respites and inland travels make up significant portions

— are starting to encroach; they used to work three months and sail nine, now it's more likely to be six and six, with time spent at their home base in New Zealand. "We get port fever," Larry confesses. "We have down days like everybody else. But the freedom still makes up for them. A boat is the only thing I can't imagine not having."

### Beating the system

Nor, of course, can anyone who's familiar with the Pardeys' story imagine them without a boat... or without each other... or without their attitudes about life. And when you spend time with Larry and Lin, you can't help but want to expand your own horizons, clichéd as that sounds, and not only as a sailor, but as a human being. You can't help but marvel at how they whole-heartedly embrace the world, convert strangers into friends, turn the sea into a realm of joy.


**“We think it's better to use the wind and your brain and hands instead of a diesel and checkbook.”**

of their *Seraffyn* books. They still talk excitedly about a seven-month "land cruise" through Africa; they left the boat in good hands, bought a truck, and set out. Larry even installed pipes atop the roof so they'd be able to enjoy warm-water showers.

**Share your lifestyle.** Some cruisers worry that they won't see their families or friends, "but we actually see more of our family than we would otherwise," Lin believes. "We orchestrate family reunions in fascinating places, using the boat to take our guests on daysails. And we invite our nieces and nephews to come stay a while just as their parents are ready to kill them."

**Stay flexible.** Cruise as long as you enjoy it and not a moment more. "We always said we'd be doing this as long as we have fun," Lin says. "If our cruising life didn't change, it would become the same grind we have been running away from." Larry adds that they don't know how much longer they'll cruise: "as long as we're able, we're saying now." The demands of age — their own and their parents

When you ask what they consider to be the greatest satisfactions of their cruising lifestyle, Lin credits learning "how competent I can be at a wide variety of skills." For Larry, it's "beating the system. I wanted time, time to *live* my life." Smiling, he recalls his grandfather, a self-taught builder who crafted the first aluminum RV in Canada: "He instilled in me a positive attitude about building things — and about the notion of individuality. He was quite irritating to the rest of the family because he didn't work a 'normal' job. He lived like Lin and I do."

The Pardeys now find themselves in Canada, exploring the cruising grounds near Larry's birthplace. "We have not forgotten our lovely *Taleisin*," says Lin. "We plan to spend the northern summer enjoying her graces. If our program works out, we might just have nothing but summers for several years — with two completely different types of sailing to fill our days." Then, true to form, only they'll know how next they'll choose to crown their diverse accomplishments. 



## For further reading and viewing ...

**W**hether you're discovering the Pardeys for the first time or sampling again their adventures or advice, you will find the complete collection of their books and videos/DVD at <<http://www.goodoldboat.com/bookshelf.html>> or by calling 763-420-8923. You can follow Larry and Lin's more recent adventures at <<http://www.landpardey.com>>, which features a "Where are they now?" update, a regularly posted newsletter, and cruising tips.

### Read about their travels

*Cruising in Seraffyn* (1992)  
*Cruising in Seraffyn*, 25th Anniversary Edition (2001)  
*Seraffyn's Mediterranean Adventure* (1991)  
*Seraffyn's Oriental Adventure* (1996)  
*Seraffyn's European Adventure* (1998)

### Learn from their experience

*The Capable Cruiser* (1995)  
*The Care and Feeding of Sailing Crew* (1995)  
*Storm Tactics Handbook* (1995)  
*Self Sufficient Sailor* (1997)  
*Cost Conscious Cruiser* (1998)  
*Details of Classic Boat Construction: The Hull* (1999)

### See them in action (videos/DVD)

*Cruising with Lin & Larry Pardey* (1992)  
*Voyaging with Lin & Larry Pardey* (1992)  
*The Care & Feeding of the Sailing Crew* (1992)  
*Cruising Coral Seas* (1992)  
*Storm Tactics* (2002)  
*Storm Tactics — DVD* (2002)



# The Island Packet story

**Bob Johnson  
both designs and builds  
this best-selling cruising line**

by Henry Cordova

**R**OBERT K. JOHNSON, N.A., FOUNDER OF ISLAND PACKET Yachts in Largo, Florida, has been committed to the shipwright's craft all of his life, despite growing up in inland Connecticut. A naval architect trained at the Massachusetts Institute of Technology (MIT), Bob designs all the boats he builds, winning numerous awards such as *Cruising World's* Boat of the Year. His designs are notable as production, full-keel cruising boats that are built in the United States, perhaps all the rest having gone to fin keels. But Bob takes exception to that label, insisting that his "Full Foil Keel" is very different from traditional full keels and is more like a long fin.

His unique approach to yacht design is the culmination of a lifetime in boats. "I've had the bug ever since I was a boy," he says. "I did my ninth-grade 'My Career' report on naval architecture and marine engineering and wrote letters to Chris-Craft and other companies to find out about careers in the field. It's been in my genes since I was born. I subscribed to *Yachting* magazine when I was eight. My dad had a small

powerboat in Connecticut that we rebuilt in the garage, but I always wanted to get into sailing. I wanted a pram, but we lived 50 miles inland in Connecticut, and it just wasn't going to happen."

In 1957, when Bob was in ninth grade, the family moved to Florida, buying a house on a canal in North Palm Beach. Bob bought plans from *Rudder* magazine for a 12-foot catboat. It had hard chines and a V-bottom. He says it wasn't a simple boat to build. His father was a machinist and expert woodworker, who made his own machine tools. Bob says his father was a big help, but it was still very much his own project. "I lofted it on the living room floor and built it in the carport," he says. "I altered the rig, installed a folding mast, and even changed the shape of the hull while I was building it. Before the rig was finished, my brother and I tested the hull by sailing it downwind with a beach umbrella for a sail. I'd never sailed before in my life. I built the boat first and figured I'd learn how to sail once I did."

## Nuts-and-bolts guy

After earning a bachelor's degree in mechanical engineering from the University of Florida, Bob attended graduate school at MIT, earning a master's degree in naval architecture and marine engineering. He thought he would major in physics but decided it was too theoretical. "I'm a nuts-and-bolts, hands-on kind of guy," he says, "so I stayed in engineering." His formal education gave him a firm foundation in what he calls "the scientific method."

He explains, "MIT didn't dwell much on the subtleties of sailboat design, but you're completely prepared to apply the information you do learn to sailing boats or high-speed powerboats. That's naval engineering, not architecture. The architecture is the art aspect of it. The shape of a hull can't be fully quantified. Computer programming can help because you can do an awful lot of modeling very quickly and mathematical models can help you evaluate hull change. But ultimately you have to go out into the real world and try it. I graduated in 1967...38 years ago, and there have been a lot of new ideas since then, or elaborations of older ideas, like hydrofoils, surface-piercing vessels, and many others."

After college, Bob moved to California to work for McDonnell-Douglas in Culver City. His work was on anti-ballistic missiles, for which he devised a process to show loads on critical components using finite element analysis. During his two years at McDonnell-Douglas, he did not forsake sailing. Bob also liked surfing and ended up leaving McDonnell-Douglas to work for the Wave Corporation, which made surfboards at the time. Some of his achievements were to

design and patent an adjustable fin system for surfboards and to develop molded surfboards using aerospace materials. This led to meeting Hoyle Schweitzer, who popularized sailboards and registered the name Windsurfer.

### Harder still

“He was able to get past the idea that if surfing is hard, if you put a sail on the board it’s harder still,” Bob laughs. “But he had the vision to see that some people would learn how, and he opened up a new market. Hoyle wanted us to make his boards, but we couldn’t see any future in it. Shame on me, and laudits to Hoyle for having that insight!”

Bob’s job at Wave Corporation lasted five years. “Our final boards were very good but very expensive,” he says, “and the market wasn’t really there. The company went public. Karl Pope, an electrical engineer and surfer, was president, and I give him a lot of credit. He’s still making

“Before the rig was finished, my brother and I tested the hull by sailing it downwind with a beach umbrella for a sail.”

surfboards, and we still correspond, but I wanted to go back into boating and to my family back East.”

In 1974, Bob went to work for Ted Irwin, head of Irwin Yachts in Clearwater, Florida. His first assignment was to modify the existing hulls of the Irwin 30 and 33, as well as the rigs, keels, and rudders. Though Bob was not a keen racer, Ted was, and Bob got involved in developing some International Offshore Rule (IOR) designs for the Southern Ocean Racing Conference (SORC). “I worked on modifying an Irwin One-Ton racer inspired by *Terrorist* — not a name anyone would pick today,” he recalls. “*Terrorist* was a beautifully built aluminum boat that came from California and was fitted with twin bilge boards and internal ballast. She was a



The Island Packet 31, on facing page, was the “do-or-die boat,” according to Bob Johnson, who says he bet everything on it financially and emotionally in 1983. It turned out all right in the end, since 262 were built (more than any other Island Packet design) before production was ceased in 1989. Earlier designs were the Island Packet 26, at top, and the 27, center, introduced in 1980 and 1984, respectively. The Island Packet 35, at bottom, with interior view, at left, was introduced in 1988.





very fast boat. Ted was very creative. He loved boats, and I loved working with him. There was another designer at Irwin at the time, Walt Scott, and we all became good friends. Ted's motto could have been, 'If it won't break, it's too heavy.' I like to make models, so we sent one to Stevens Institute of Technology in New Jersey for tank testing. This eventually became *Voodoo* (an evolution of *Pantera*) with hard chines and triple boards; if two are good, then three are better. It had a jibing daggerboard and asymmetrical bilge boards. It didn't dominate the circuit, but it had its moments."

### Irwin offshoot

"Endeavour Yachts was an offshoot of Irwin," says Bob, "run by some of Ted's prior employees. It was just beginning in 1975, and they bought the old abandoned Irwin 32 molds to get started. The two firms were sort of joined at the knee, Endeavour buying materials from Irwin and so on until Endeavour finally became a competitor to Irwin."

After two years, Bob left Irwin on good terms and went to Endeavour so he could design boats with his name on them and run the plant. He designed the Endeavour 43. Then came the 40, which evolved into the 42, both of which were of "Miami Vice" TV fame. "It was a real home run for the company," Bob says.

"A lot of people seem to think I designed Endeavour's 32 and 37 (which preceded the 40), but I didn't. A fellow named Dennis Robbins evolved them," he adds. Bob still yearned to be on his own, designing his own boats, so in 1999 he left Endeavour to hang out his own shingle. By now he had a family and two babies. Most of his early commissions were small jobs — rigs, new keels, and an interior and deck for Watkins Yachts. Bigger jobs were two complete boats for Com-Pac — the 19 and (a few years later) the 27. He also did some work for CSY (Caribbean Sailing Yachts).

"They were charterers," Bob says, "not experienced builders. I helped them out with some manufacturing consulting because they were having trouble. They couldn't sell enough boats or make money. Basically, I told them they weren't going to make it; they just weren't very analytical about running a business." Boatbuilding can be a tough business, as another of Bob's friends found out. "George Hahn at Prairie

**Karsten Johnson, Bob's son, poses by a deck mold, top left. Decks and other components are moved about the plant on welded steel dollies, top right. The integral bow pulpit is wrapped in cardboard to protect it from being damaged. A completed Island Packet 445 deck is being lowered onto the hull, guided by the assembly crew, second and third from top. Several Island Packet 445s are near completion in the assembly area, at bottom.**



# “The origins of Bob’s own company can be traced to a New Haven sharpie he designed in 1976 for his own use, the Lightfoot 21.”

Boat Works was one of my old surfboard dealers and promoters at Wave,” Bob re-

counts. “He was a delightful guy who started off with one of his own designs, the Prairie 32. Prairie was a model of how a boat company should be set up, but he still couldn’t make it go. He had a beautiful plant, molds, and great new designs by Jack Hargrave, but he couldn’t operate profitably.”

## Lightfoot 21

The origins of Bob’s own company can be traced to a New Haven sharpie he designed in 1976 for his own use, the Lightfoot 21. A few magazines wrote it up, drawing attention to it. At first he sold plans for homebuilders working in plywood, but a demand for a fiberglass version prompted him to make a set of molds and manufacture it himself. “I made the first molds in my carport, probably to the great distress of the neighbors,” he says. “Then I rented a garage and called it Traditional Watercraft, working with a lot of fellows in town who were looking to moonlight a few hours a week. I marketed the boat and priced it with a dealer in mind, but no dealer wanted it because it was too unusual.” Still, he sold 18 and was on his way as a production builder.

Next came an opportunity to buy molds for a 26-footer from Bombay Yachts, which was being liquidated. It was founded by two men who left Irwin: Ross James, production manager, and Chris Petty, sales manager. They built the 31-foot Bombay Clipper designed by Walt Scott, then bought a Canadian mold and converted a 44-footer. Their last boat before they went out of business was the 26-foot Bombay Express. They built 16 or 17 of those, and some were sold as unfinished boats because they were winding down. They didn’t go bankrupt but they sold out to an investor who passed away, and the business was liquidated.

“I realized an opportunity was before me,” Bob says. “The Express was a boat I related to, a centerboarder with a barn door rudder. It looked like a Cape Cod Catboat with 5-foot 9-inch headroom. I bought the molds in 1979, and it became the parent boat for the Island Packet line, the Island Packet 26, introduced in 1980. At the time I was still operating out of my house. Two friends, Pete Pastor and Bob Folks, who owned a company called Marine Innovators building the Sandpiper 32 and the Beachcomber 25, were contracted to start production.”

## Introducing Island Packet

“But they also were a tooling company and had made the plugs and molds for the Bombay Express,” he adds. “I redesigned the interior and rig, left the rudder as is, put in a different centerboard, and introduced it as the Island Packet. I incorporated formally as Traditional Watercraft, Inc., in the fall of 1979. We built 16 boats over a year and a half. We were able to estimate the pricing fairly well and sold the boats with classified ads in magazines. We sold the first three sight unseen, staged payments, owners never seeing them until they were delivered to their doorsteps.” Despite his considerable experience, Bob still wasn’t exactly a household name, and selling the boats took some work. “I developed a very thorough brochure with beautiful illustra-

tions by my brother,” he says, “and talked to customers a lot on the phone. I knew

the boat backward and forward, so I could answer their questions. I guess they were comfortable with who I was although they had no reason to be. God love ’em, I couldn’t have gotten started without them and their confidence in me. Their payments financed the construction.”

Dick Watts of Massachusetts bought the first boat, which Bob built under contract with Marine Innovators. But a year later, when that company’s Beachcomber 25 took off, they couldn’t produce enough of them and were unable to accommodate Bob’s project on top of theirs. “I was selling more and more,” Bob says, “so I realized it was time to take the big step.”

He rented a 4,000-square-foot building, hired five people, and started building. The parts were subcontracted — glass work to one company, the wooden parts to another. Bob’s crew did the assembly. After hull #30 Bob came out with the Mark II, which had more headroom and the first Full Foil Keel (the original 26 was a centerboard and drew 2 feet 4 inches with an outboard rudder). The Island Packet Mark II (not the 26 Mark II yet) was introduced at the Miami Boat Show in February 1982. She was bought and named *Bubbles*. Bob says she’s still going strong, having won the Miami-Key Largo Race late last year.

## Not your father’s boat!

Earlier this year Karsten Johnson, marketing manager with Island Packet Yachts and son of Bob Johnson, introduced a boat that occupies space at the opposite end of the sailboat continuum from the Island Packet line of cruisers. Called the BigFish, this lateen-rigged daysailer has cockpit room for two adults and promises to bring couples and families a whole lot of fun on the water. The BigFish is being built on a separate line at Island Packet’s Largo, Florida, plant.

Bob Johnson suggests that a cruiser and a peppy daysailer make a good combination. In fact, no matter what sort of small sailboat people have when moving up to a cruising sailboat, Bob advises, “Don’t sell your small boat.” In keeping with this philosophy, in his marketing materials, Karsten writes, “While the BigFish may not be the largest boat you’ll ever own, it’s likely to be your favorite!”

For more on the BigFish, visit Karsten’s site at <<http://www.bigfishyachts.com>> or call 727-451-2248.



COURTESY OF ISLAND PACKET YACHTS



**Bob Johnson in his office.**

### **Name recognition**

The new Island Packet 31 was developed in the spring of 1983 and introduced that fall at Annapolis. Bob was going to call the 31 the Bermuda Packet "...or something similar, the company name being Traditional Watercraft," he says, "but we went with

the name Island Packet 31 because of the name recognition we had achieved. Retroactively, the first two boats became the 26 and 26 Mark II in the fall of '83. In '84 we released the 27, which was actually a Mark III 26. The 27 wound up with 6-foot 1-inch headroom by increasing the freeboard."

He adds, "The 31 was the do-or-die boat. I bet everything on it, financially and emotionally. It was a completely new boat from the ground up, not a modification of an earlier design. We sold

a lot of 31s right off the bat. It had an aft cabin with a fold-away door and an articulating chart table. It was a good boat that was both roomy and a good sailer." When the 31 was replaced by the Island Packet 32 seven years after its introduction, 262 hulls had been produced, more than any other Island Packet design. As a result of its popularity with customers, Bob was able to purchase two acres of land in Largo, Florida, and build his own shop.

Within two years, tooling began for a new Island Packet 38 and a 20,000-square-foot addition was added to the building. By the time the firm celebrated its 10th anniversary in 1989, another model had been introduced, the Island Packet 35, and another 21,000-square-foot facility had been built on an additional eight acres of land across the street. Island Packet was unquestionably in business. Many of these earlier models were offered with a full keel or with a shoal-draft centerboard option. Since the average production run is roughly five years, there are quite a few discontinued models. Today, Island Packet builds four models: the 370, 420, 445, and 485. With the exception of a 40-foot

high-performance motoryacht, the Packet Craft Express, Island Packet Yachts currently produces only cruising sailboats. Between 1992 and 1997, the company also launched 41 Packet Cat 35s, luxury sailing catamarans.

### **Design and construction**

The Island Packet Yachts construction facility is located in Largo, Florida, and consists of several large buildings totaling over 100,000 square feet on both sides of a street in an industrial park. It is clean, well organized, and neatly kept. The yachts are highly engineered. Part of the design process is the extensive use of mock-ups to ensure everything fits and clears and that there will be no surprises during construction — or later when access may be required for maintenance. Each boat is also uniform in concept, not highly varied for different options. However, dealers are encouraged to meet owners' wishes for special custom touches and accommodations, such as mounting pads for generators or pre-wiring electrical systems for possible later additions. Interior liners have numerous access ports that provide additional storage and offer access for checking and maintaining bonds, which would otherwise be inaccessible. Voids and corners, even those not visible to the eye, are carefully finished; there are no sharp edges or points to surprise

one when groping around in the dark in confined spaces. An extensive quality control process is in place that includes a quality assurance log for each boat where key items are checked off during construction by line personnel.

**"The 31 was the do-or-die boat. I bet everything on it. It was a completely new boat from the ground up..."**

Island Packet boats are constructed in a conventional manner. Each boat is made up of four major fiberglass components: the hull, deck, and the two liners, or pans, that fit inside the hull and deck and which together form the interior of the yacht. Each of these four components begins as detailed drawings for constructing the male plugs out of wood. The plugs must be perfectly fair because they are used to create

the female fiberglass molds that are then employed to mass-produce the actual hull, deck, and liners. The tooling department is a year ahead of everyone else in the plant; they are often working on models that won't be released for years.

### **Low-pressure gelcoat**

The construction cycle begins when each of the molds is waxed and sprayed by hand with gelcoat at low pressure, allowing the operator to control the thickness to an optimum 25 mils. Next, the molds are rolled out on casters to the lamination area and layers of glass and resin are laid in place. The lamination method is straightforward and done by hand. Each layer is done separately, one layer a day. The

### **The classic models**

Model	First built	Last built	Number
IP26	1980	1982	29
IP26 Mk II	1982	1984	46
IP27	1984	1992	243
IP29	1991	1997	64
IP320	1998	2002	n/a
IP31	1983	1989	262
IP32	1990	1996	12
IP350	1997	2004	n/a
IP35	1988	1993	178
IP37	1994	1998	60
IP380	1998	2004	169
IP38	1986	1993	188
IP40	1993	2000	137
IP44	1991	1995	35
IP45	1995	1999	44
PC35	1992	1997	41

first layer — called the skin coat — is conventional fiberglass mat with randomly oriented fibers. The hull and deck use one layer of mat and multiple layers of triaxial knitted cloth. This material, which Bob says is one of the strongest fiberglass cloth products available, is twice as strong and puncture-resistant as the alternative, woven roving. Conventional cloth has fiber bundles woven at 90 degrees, while triaxial cloth is oriented in three directions and then sewn together with glass threads. The weave is very dense; getting resin into the glass in the proper proportions and then removing the excess requires the use of squeegees in addition to the usual hand rolling.

As a full-keel design, the hull molding includes the keel. The keel cavity is filled with lead ingots for ballast. (Smaller boats like the 370 use iron and concrete.) These are packed in resin to bond them to the inside of the keel void and are stabilized in place with mortar. Three additional layers of triaxial glass are then placed over the concrete to strengthen the spine of the boat and to provide a double bottom.

Both hull and deck are then bonded to their respective liners. In the former, the liner is lowered in and glassed into place at predetermined points that are made fully accessible by storage-access holes strategically cut into the liner molding. Unlike the majority of boats today, the deck is cored with a proprietary mix of resin and microballoons Island Packet calls Polycore. It is formulated in-house and applied in a ½-inch- to ¾-inch-thick layer like the frosting in an Oreo cookie. It is an extremely strong and durable composite that is impervious to rot, delamination, and water intrusion. The deck and deck liner are fitted and then bonded together. Polycore is stiff, strong, and ideal for decking but is not used on the hull surfaces because it lacks the puncture resistance of a solid triaxial glass laminate.

### Three chainplates joined

In the hull, tanks for water, fuel, and waste are installed just above the keel. Then plumbing and through-hull fittings are put in place. The three chainplates per side are joined by a welded T-bar and interlock with molded hull flanges. They are then glassed in place with a fan of glass fibers designed to help dissipate strains from the rigging across the entire hull. The hardwood cabin sole is then bonded to the liner. While the interior is being built, the deck is assembled in tandem: ports, hatches, cleats, winches, travelers, blocks, and other deck hardware are added at this time.

After completion of the hull and deck sub-assemblies, the two are custom fitted and joined to the interior bulkheads. The deck is bolted to the hull with ¼-inch stainless steel bolts every 6 inches and sealed with a special waterproof gasket and a liberal application of 3M 5200 urethane sealant. On deck, toerails are still formed on a jig and bent and glued by hand.

A visitor to the Island Packet facility gets the impression that this is a very modern, highly automated, assembly line operation. The staff bustles about with an air of motivation and precision. People seem busy and absorbed in what they are doing. Unlike the controlled chaos of

most boatyards, the Island Packet facility strikes visitors as being a very smooth and disciplined operation. Total construction time for an Island Packet yacht varies by the model, from 2½ months for a 370 to a month longer for the 485. After the boat is shipped, the dealer installs spars, sails, rigging, lifelines, electronics, autopilot, air conditioning, and refrigeration. (Some 2005 models include electronics and refrigerator/freezer systems.)


### Roomy and comfortable

All four of the current models are serious bluewater boats designed to be easy to sail, roomy, and comfortable. Design features common to all include cutter rigs with twin backstays, a patented Hoyt Jib Boom on the staysail that makes the jib self-tending and self-vang-ing, roller furling on all sails, and the Full Foil Keel with a protected prop and separated rudder driven by rack-and-pinion steering. All models have a swim platform aft. All have at least two staterooms, at least one head/shower, a navigation station, and, of course, a saloon and galley. The 370 starts off at \$259,950; the 485, fully equipped, sells at more than twice as much.

Bob and his marketing staff are quick to emphasize that Island Packets are built, first and foremost, as cruisers. “First in Cruising” is the company’s motto and “America’s Cruising Yacht Leader” is the tagline appearing on its literature. Safety, comfort, seakindliness, and stability are given priority over performance. Although every Island Packet is designed to be completely suitable for a daysail on the bay, as well as being a transoceanic machine, no claims are made for it as a racer or even a racer/cruiser.

On the other hand, speed should not be ignored, and it is a quality that can be of considerable value in a cruising boat. The less time one spends on a passage the less time there is for something to go wrong. As it turns out, Island Packet Yachts have been able to more than hold their own offshore against boats that are considered more competitive, taking class honors in events such as the Caribbean 1500 and the Marion-Bermuda Race.

Bob Johnson may very well be the only naval architect who owns the yard that builds his designs. He has been honored with the *Sail* magazine Industry Leadership Award and serves as a director of several marine industry associations. His boats have won numerous honors from many quarters, including five Boat of the Year, four Customer Satisfaction, and two Best Value Awards. Since the creation of the new European Union certification standards, all his sailing yachts have been CE-certified “Category A, For Ocean Use.” Island Packet was the first U.S. builder to pursue this certification.

After 25 years of not only surviving, but also flourishing, in what is often a volatile industry, Robert Johnson has a lot to be proud of. 


## Resources

### Island Packet Yachts

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 More online... Author Henry Cordova transcribed his entire interview with Bob Johnson. For those who wish they could spend a couple of hours chatting with the founder of Island Packet, go to <<http://www.goodoldboat.com/IPinterview.html>>.



# Nature says when

## *A senior sailor undergoes a slow transition to power*

by Dean Raffaelli



The author's Hallberg-Rassy  
Monsun 31 (this page) and his  
new Nordic Tug (facing page).

**E**VER SINCE CHILDHOOD, MACHINES have fascinated me, especially if they had big diesels in them. The sounds that emanate from these machines: the whirls, the psst, the throbbing... well, they just seem alive. The mass and momentum, even when creeping along, mesmerize me.

Davenport, Iowa, was my home for some 1,000 days (but who was counting?) and the one thing that kept me entertained all summer was riding my bike down to Lock and Dam Number 15 to watch the big tows go through, usually on their way down the Mississippi River to New Orleans with cargoes of wheat, soybeans, and corn destined for some far-off country.

The five-story push boats and their barges would slowly glide into the lock, almost silently until it was time to stop. Then clouds of black smoke appeared from the stacks to the sounds of timpani and bass drums. The equivalent of many hundreds of truckloads quickly came to a stop as a seething caldron of water erupted at the rear of the boat.

It's all done with such élan. I just hoped that if I ever got a boat (a dim prospect), I could do as well with 30

feet as opposed to 300-plus feet. It all seemed organic to me, as if large breathing and belching creatures had descended upon me. I would sit for hours in the warm sun on the banks of the river and just watch and dream.

I recently made a transition from sail to power, a transition that occupied a good decade of my life. I cannot remember when I saw my first small tug, one I could actually own. I cannot even remember if it was in person or a photo in an ad, but it certainly left an impression on my frontal cortex similar to the first Herreshoff design I gazed at in a big coffee-table book. Tugs are real boats designed to look and act the part. They come from an American tradition of working boats and not the imagination of some anonymous Euro-design team.

### **Before the Internet**

This was happening to me in pre-Internet days. I wasn't able to get gratification by typing "tug" into the search engine and having a few thousand images instantly available. While secretly looking at powerboat magazines, I saw an ad for a dealer selling tugs about half a day's drive from my

home. So one Saturday morning my wife, Charlotte, who had figured out my obsession by this point, and I took a ride to see these exotic creatures.

It could not have been more than 40 degrees outside, and it was drizzling and foggy by the time we arrived at the dealership. The sales staff was patient with us, considering that it would probably be another 15 years before we would have enough wherewithal to purchase one of these little ships.

I took a few pictures of the tugs and placed them on the refrigerator. Not on the front, which is reserved for family, friends, and more attainable goods, but on the side. Every day as I walked into the kitchen I would see these boats perched on their cradles and think about the possibility of actually owning one.

Time moved on. We became the owners of a superbly built 31-foot Swedish sloop, got a mooring in the harbor I had first started sailing in 30 years before, and hence fulfilled the dream of a lifetime. The next five years were spent rebuilding every system and learning to sail her properly. Another five years went by, and suddenly we had become middle-aged.

This was a shock to both of us. I think I first realized it when the top of my head got sunburned. Other clues, such as taking 30 minutes to straighten up each morning after sleeping in the V-berth and having to approach getting to the head in the middle of the night like a military campaign, brought home the inevitability of aging.

### Simpler designs

So I started looking in earnest for a powerboat of the trawler type. I had never paid much attention to powerboat design, figuring it would be simple compared to sailboats. I think there is some truth to this but not enough to warrant ignorance of the subject.

**“I had never paid much attention to powerboat design, figuring it would be simple compared to sailboats.”**

I first looked to the powerboat magazines, but mainly I found boats that could sit in for the shuttles on the spaceship *Enterprise* and ads with young bodybuilder types or older gents with shocks of white hair each with the prerequisite bikinied blonde on their arms. There wasn't much about boat design.


Little by little, I started to decipher the lingo and understand the differences between planing, semi-displacement, and displacement hull forms; the pros and cons of inboards and outboards; single screw vs. double screw; diesel vs. gasoline; and thruster vs. no

thruster. I also started to come to grips with the concept of gallons per hour vs. gallons per season. I have paid much more attention to the price of crude oil since signing the contract for the tug.

So, yes, we did go over to the dark side and are now the owners of a 1990 32-foot single-screw, semi-displacement tug renamed the *Carrie Rose*, after my wife's grandmothers. We sold the sailboat to a guy in California who plans to sail the South Pacific, and our friends — though at first suspicious and wondering if I was also going to become a Republican — have been very gracious. I even think they are a looking forward to their first ride, just as I am, having been on a powerboat

for less than five hours in my entire life.

So today, on this spring day with the cumulus clouds gently gliding overhead from the southwest, I am in my car parked at Montrose Harbor, looking out through the harbor entrance at downtown Chicago, trying to imagine what my mooring will look like with a stack and a pilothouse instead of a mast and a dodger.

I spent the last 10 years getting ready for this moment, but I think I will sign up as crew on the Wednesday night beer can races, just to keep my feet in the water as we heel over to the gust on Lake Michigan. 



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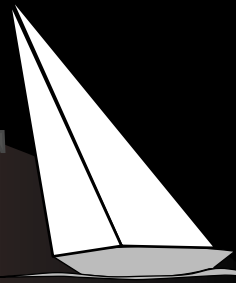
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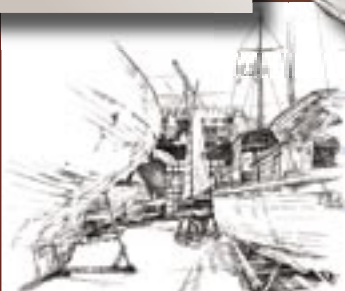


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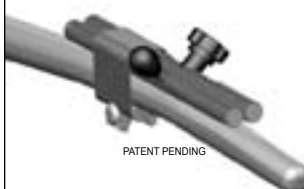
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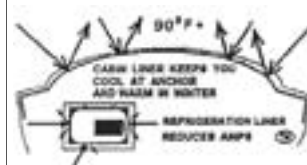
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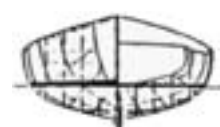
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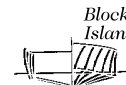
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ATN Inc./Topclimber.....	65	J.R. Overseas Co .....	67	Sailing Program.....	67
Beta Marine North Carolina.....	77	Kestrel/Nielsen-Kellerman .....	84	Sailor Bags/Market Marine.....	65
Bingham Boat Works.....	69	Knotstick.....	65	Sailor's Solutions Inc.....	64
Boat Owner's World.....	67	Lakeland Boatworks .....	82	Sailrite Enterprises.....	Back cover
Borel Manufacturing .....	65	Landfall Navigation .....	78	Sandifer Surveying.....	67
Bo'sun Supplies.....	74	LBI Inc Fiberglass.....	66	Sea-Cure/World Wide Safe Brokers .....	66
BottomSiders.....	75	Lee Sails Northeast.....	68	Seabuilt .....	80
Bristol Bronze .....	64, 65, 66	LineCatcher Inc .....	70	Seven Seas Books Online .....	67
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By-The-Sea Website.....	67	Marine Mail Order/MMO .....	72	Small Craft Advisor.....	82
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DeBond 2000/Marine Formula .....	80	Mobile Marine .....	28	Sun-Mar Corp .....	26
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Forespar Products.....	81	NewGlass2.....	66	VariProp USA.....	75
Foss Foam Products.....	64	Paneltronics, Inc .....	26	Ventair USA Inc.....	69
Good Old Boat Logo Wear/Books/CD .....	60, 61, 86	Poli Glow Products .....	65	Yager Sails and Canvas.....	68
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# Adding extra storage

## *Bulkhead shelves you can take or leave*


by Ed Verner

I WANTED TO HANG PRE-FAB ACCESSORY SHELVES (AVAILABLE IN teakwood) in the galley area and main saloon of my Allied Seawind. I was loath to mount shelves permanently, however, thinking they would be difficult to keep clean and oiled. I decided to try a sliding mounting system. I wound up scavenging brackets used in household wood shelving and am very pleased with the results.

Each wooden bracket (I bought mine at Lowe's for \$6) gave up two "female" keyhole brackets, which I used to mount on the back of each shelf. These plates have a notched collar hole where the head of a mounting wood screw can pass; the collar then tightens around the screw head as the plate is slid into place. I replaced the steel "male" screw provided with each bracket (intended to go into a pre-drilled hole in sheet rock) with a very short brass wood screw of similar diameter, driving it into pre-drilled and 5200-sealed shallow holes in the cabin walls.

To add stability and strength to the setup, I used four brackets for each shelf and adjusted the cabin bulkhead setscrews with as little relief as possible, so that the shelf must be muscled in a bit when being slid down and into

place. I wanted to have the shelves wedged in tightly to survive heavy motion or heeling. With four attachment points, the shelves require some pretty firm tapping for removal. I believe they would remain in place through a knockdown, but I would have bigger worries if that day comes.

I now have five removable shelves that have added a large amount of storage space. 



The bulkhead at the companionway on Ed's boat had room for shelving, so he added two units in the galley area to port. Top and center photos show the area without and with shelves. The starboard bulkhead received similar treatment, at bottom. The keyhole brackets that made removal possible, above.



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# Knife block

## *An elegant and convenient way to store galley knives*

by Brian Dodds

CLOSE BEHIND THE TWO LOVES OF MY LIFE (MY PARTNER, JUDY, and my 1979 Newport 41, *Forty Two*) is my love of cooking. Sharp knives of the proper design and weight are important to any cook. However, these can be a hazard on a rolling yacht, if loose, and a danger, if left uncovered in galley drawers when you reach inside for something.

At home, my knives are kept in a wood block. I needed something similar aboard. While searching through kitchen stores and on the Internet, the only blocks I could find ready-made were large square blocks designed to stand on a kitchen counter. There are drawer inserts available, but why take up valuable drawer space in a small galley?

What was needed was a block to hold the five knives that I use most often: an 8-inch chef's knife, a bread knife, a fillet knife, and 5- and 3-inch utility knives. The ideal would be to store the knives beside each other in a slim block that could be attached to a vertical surface in the galley. Adopting the usual cruiser's do-it-yourself approach, I set about designing my own knife block.

I laid the knives across a sheet of paper to create a template for the dimensions of the block and the width of the slots. Having arrived at these basic dimensions, the next stop was a specialty lumber shop that I knew had a great selection of hardwoods. Luck must have been with me; I found a piece of 1/2-inch mahogany that was exactly the



The finished knife block.

right width. Any straight-grained hardwood would have worked, however. A wider piece would have meant ripping the wood to the correct width on a table saw.

### Cut the slots out

Once home, I cut the board to twice the finished length of the block. Then I transferred the slot dimensions to the wood and, using a straightedge cutter in a router, cut the slots 1/8-inch deep. Once the slots were made, I cut the board in half and clamped the two pieces together for a test fit. After checking that the knives fit in the block, I glued the two pieces together with epoxy. This produced a finished block 1-inch thick with 1/4-inch slots for the knives. I drilled mounting holes in each corner and countersunk them for plugs.

After hand sanding, the final finishing was several coats of varnish. Since I use stainless-steel knives, I left the slots untreated, but the bottom could have been sealed with tape and the slots filled with cooking oil. Finally, I mounted the block in the galley below the counter using bolts through the panel and covered the bolt heads with plugs. A final coat of varnish covered the plugs.

So far this season the knives have stayed in place in some heavy seas and more than 2,000 miles. 



Creating the template.

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# Concentric holes

## *How to turn a small hole into a bigger one*

by John Spier


**A**S A LONG-TIME CARPENTER, I'VE OFTEN BEEN FACED WITH the task of enlarging a hole. I've used lots of tricks over the years, not all with perfect success, so I was pleased to read Niki Perriman's tip in the May 2004 issue. Her approach, using a tapered plug driven into the offending hole and cut off, is better than many.

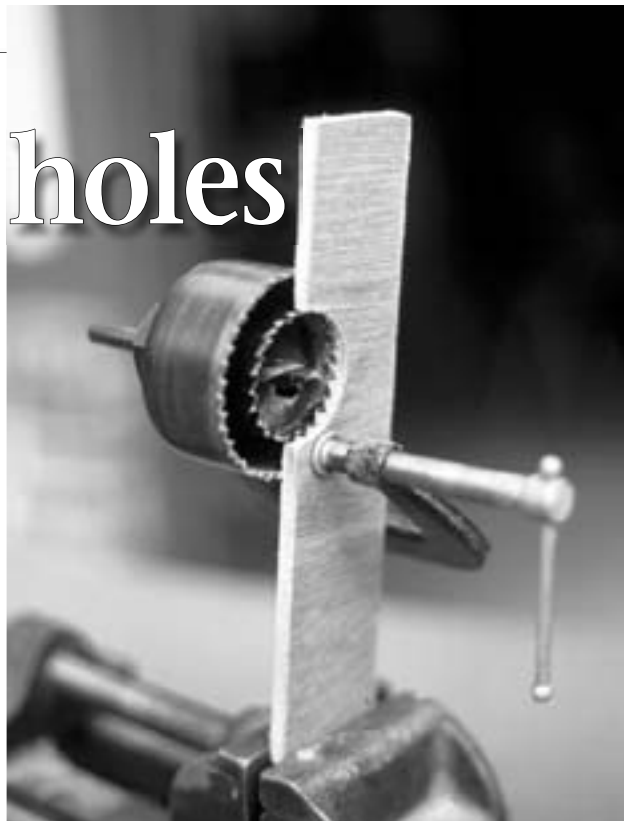
A couple of years ago, though, I was shown a trick for this situation that approaches genius. I had ordered a new plastic water tank for my catamaran. In the process of installing it, I realized that I needed to change a fitting. Because the new fitting needed to be "spin-welded" in place, I had to load the tank in my truck and drive 40 miles to the supplier's shop.

The offending fitting needed a 2-inch hole drilled where there was already a 1¼-inch hole, so I watched with interest to see how the installer would make the change. He chucked a hole-saw mandrel into his drill, put on the 2-inch saw, and then put on a 1¼-inch saw inside the larger one.

"Wait a second," I said. "Let me see that!"

The smaller saw fit into the existing hole and served as a guide to center the larger hole exactly in the same location.

When I got home, I went right to my collection of hole saws. The saw blades are fairly universal; I have saws from at least three manufacturers, all of which are interchangeable. I found that the threaded portions on several of my mandrels were long enough to accommodate two hole-saw blades, one inside the other. I've since used the trick any number of times, and when I put together the tool kit that goes cruising with me, I made sure that it included one of the long mandrels. 



**One clever way to enlarge a hole — without having an existing center for your hole saw — is the saw-within-a-saw trick, illustrated here in cutaway view.**



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*A novel way  
to overcome the problem of  
lying alongside pilings*

by Don Launer

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We have adopted a technique that I believe is original. Using the type of fenders with a hole all the way through them, we string four fenders together, two for each side of



the piling. Where there is little or no tide, one on each side can be used. (For locations with really large tidal changes, this idea may not be practical.) The tops, centers, and bottoms of the fenders are tied together with short lines that allow the fenders to rest on each side of the piling but still project out far enough to provide good cushioning. The double fenders are supported from the back of the piling. We have a snap hook on this support line that allows us to raise or lower the fenders if the tide is unusually high or low.

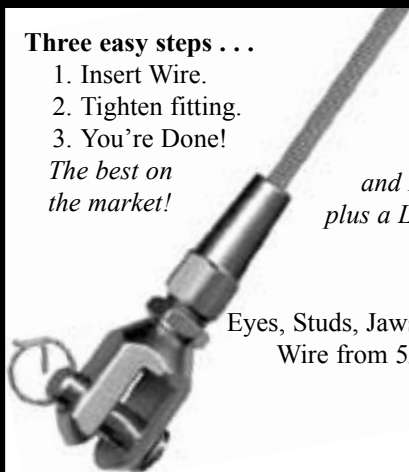
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If you typically leave and return to the same dock, why not leave your fenders behind? Don Launer developed a method that protects a boat from the pilings in a tidal area (as long as the tides aren't too large).

Since the fenders are on the pilings and not on the boat, any movement of the boat, fore or aft, is irrelevant. This system also provides a more spread-out cushioning — two soft fenders for each piling. And when we leave the dock we don't have to worry about stowing the fenders on board. 

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# Adding a pushpit rail

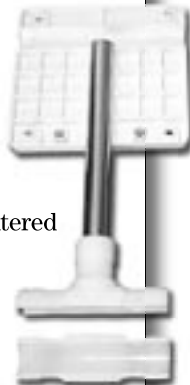
*Providing extra support for an outboard mount*

by Craig Carter

WHEN COASTAL CRUISING, I LIKE TO TOW THE DINGHY BUT with its small outboard mounted on the stern rail of the mother ship. This is more secure, and the dinghy tows much better. To mount the engine on the pushpit, I used the typical kicker pad, an inexpensive T-style molded mount, made to fit the 1-inch rails of the pushpit. The problem I encountered on my Pacific Seacraft Dana is that there are no verticals in the pushpit where I wanted to mount the pad. Lacking a vertical connection, the pad was free to rotate about the horizontal rail, making for a flimsy installation. I needed to find a way to add the needed vertical support without cutting into the pushpit railing or resorting to one of



Craig mounted a kicker pad securely on the aft rail with the help of a nylon T insert used to connect plumbing hose. These parts plus a couple of hose clamps did the trick.



the many unsatisfactory approaches I've encountered — dowel and duct tape, for instance.

I solved the problem using a length of 1-inch stainless rail tubing and a 1/4-inch nylon T insert commonly used in plumbing applications for connecting hose. Using a hacksaw, I cut through the nylon fitting, opening it into two sections, which could then be closed around the pushpit rail and secured using stainless hose clamps, effectively creating the needed T below the engine pad. Then I simply cut the surplus tubing to length for the vertical, inserted it into the T, and assembled the pad securely in place.

In looking through the plumbing supply fittings at the hardware store, I noted that a 3/4-inch T in PVC could also be used. The inside diameter is 1 inch with either fitting. I chose the nylon 1/4-inch T insert because the barbed openings (normally inserted into 1-inch ID hose) will keep the stainless hose clamps in place even if loosened.

## Materials

- One 1/4-inch nylon T insert for hose or 3/4-inch PVC T connection, both available from plumbing supply stores.
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# Quick quillows

## Fast way to make a seagoing pillow/blanket

by Karen Larson

**W**HOEVER CAME UP WITH THE IDEA FOR THE FIRST QUILLOW deserves some sort of award for ingenuity. But the name of that individual is probably long forgotten. It's an idea well known to the quilting crowd and appears to be rather widespread among "the rest of us" as well. (I was amazed at how many people knew about quillows when I raved about this concept that was new to me.) What revolutionized the traditional quillow and made it perfect for boaters was the introduction of fleece fabric. By "fleece," I mean the fuzzy synthetic stuff that essentially comes from recycled plastic bags and is warm and about as easy to care for as it gets.

A quillow is a quilt with a pocket. If you fold the quilt into the pocket, it becomes a pillow. It's that simple. The creation of a quillow is ridiculously simple with fleece. You don't have to hem the stuff. You cut a blanket. You cut a pocket flap. You sew the pocket flap doubled over on the blanket on three sides. The folded fourth side makes the opening. Fold the blanket so that it can be stuffed into the pocket (this part is a bit tricky, see Page 79 for instructions). By Jove, you've got it! You don't have to handstitch a fancy quilt and

**“What revolutionized the traditional quillow and made it perfect for boaters was the introduction of fleece fabric.”**

pocket flaps as quilters are wont to do. And you can give this sort of quillow the rough treatment that may befall nice things aboard a boat.

I learned about quillows from Mary Jeanne Richards, one who enjoys all kinds of sewing and craft hobbies, when we went sailing in Washington state's San Juans with her one December. She and husband, Durkee, have several bright primary-colored quillows aboard, which came in handy as extra blankets and pillows.

### Plain-colored fleece

Mary Jeanne cautions that plain-colored fleece is easier to work with than fleece with patterns (if having the pattern



The fleece quillows on *Sirius*, a J/32 owned by Durkee and Mary Jeanne Richards, caught the editors' attention a couple of winters ago. They're handy to have aboard and easy to make. Mary Jeanne shows how, below. A doubled-over piece of material makes the pocket into which the quilt is folded when it becomes a pillow.

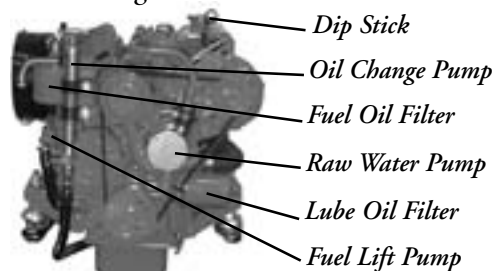


PHOTOS BY DURKEE RICHARDS

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on your pocket line up with that on the blanket matters to you, that is). Her directions follow:

- Purchase 3 yards of polar fleece. Fold it in half lengthwise and square up the ends.
- Cut from one end a strip 17 inches all the way across the width of the fleece. Then cut this strip into a piece that is 17 x 36 inches. Fold this piece in half, wrong sides together. This will become your pocket. Since fleece does not ravel, there is no need to finish any edges or trim any seam allowances. The seam allowances will all be inside when it is a pillow. And when it is being used as a blanket, the seam allowances do not detract.
- If you would like to embellish your pocket or you have a one-way design on your fleece, note that "up" is toward the cut edges, not the folded edge. Place the embellished side of the pocket face down on the blanket before pinning and sewing.
- Position the pocket at the end of the blanket, centered side to side (see photo on Page 77). The cut edges at the bottom of the pocket will be at the bottom of the blanket. The folded side will be the opening. Pin and sew the three cut sides of the pocket down. You can use the edge of the presser foot as the seam allowance guide. This is all the sewing there is to it. Your project is complete.

Mary Jeanne notes, "If you want more ideas or information, go online and do a search on the word 'quillow.' You will be amazed at how many variations there are." 

## Mary Jeanne's sewing tips

**P**in the pocket to the blanket with pins put in parallel to the cut edge and just far enough in from the edge that they won't interfere with the presser foot. Pin frequently.

The top layer of fleece will want to creep as you sew. To avoid this problem entirely, I spiral-cut a zipper-type freezer bag so I have a long strip of firm clear plastic about 1½ inches wide.

Place this over the seam line and sew through it and the fleece, holding just a bit of tension in front of and behind the presser foot. For easy removal, make sure your stitch length is short enough that the plastic will perforate as you sew. Gently remove the plastic by pulling it from the side. Your seam line will be exactly the same size as when you started, with no creeping. This is a useful technique on most any sewing project with layers that shift or creep.



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## Folding quillows

**P**lace the fleece, pocket side down, on a flat surface. Fold the long edge of the fleece back just to the pocket edge. Make this fold the full length of the fleece. Accordion fold any material that is wider than the pocket back out of the way. Do the same to the other long side. Now you have a bundle that is the width of the pocket and 2½ yards long. (1)

(2) Fold the end without the pocket over until it just meets where the top of the pocket is. (3) Fold this section again. Now fold all layers over the pocket. (4) Run your hands down into the pocket corners and grab all layers by the ears. (5) Turn the whole bundle right-side out by pulling the pocket over the bundle. You may need help turning it right-side out the first time. Let someone else pull the pocket right-side out while you hang on. (6) You have a quillow!



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# Compression brace

## Stopping that sinking feeling under the mast

by Gregg Nestor

AS IN MOST SAILBOATS ITS SIZE, MY 1984 O'DAY 222'S MAST is stepped on deck. However, unlike many of its contemporaries, my boat lacks a compression post or even a supportive bulkhead directly beneath the mast. The bulkhead that is there is located a good 12 inches aft of the tabernacle. While this makes for a spacious 6-foot 8-inch V-berth and an airy and open cabin, I question whether this arrangement is structurally sound.

I assume that C. Raymond Hunt, the naval architects of the boat, probably felt that the design combination of this aft-placed bulkhead, the cored deck construction, and the cambered coachroof contributed sufficient support. For well over 15 years, this appeared to be the case. However, a few years ago I began noticing that my rig tuning never remained as I had set it. Despite periodic adjustments, it always became a bit too sloppy.

**Cardboard mock-ups of the brackets.**

It was at this point that I sought out other O'Day 222s, talked with their owners, and checked out the boats. I discovered that boats built during the early years of the production run (1984 and 1985) were identical to mine; all lacked noticeable compression support. A compression brace began to appear in the boats built around 1986 or so. Since the V-berth and the Porta Potti are directly beneath the mast, this brace was angled downward and aft from the base of the mast to the bulkhead. I'm not certain if the brace was original equipment or an aftermarket item. But I am sure it was a "jury-rigged addition." Nevertheless, its presence stiffens the rig and eliminates sloppiness.

While I wanted to benefit from the addition of a support member beneath my mast, I didn't want this hokey-looking arrangement, nor did I want anything that would interfere with the V-berth or Porta Potti. I decided to design my own compression brace.

### Three pieces

After making a few measurements, I decided the brace would be best fabricated in three pieces. This would allow for ease of fabrication and a snug installation. In lieu of blueprint drawings, I constructed scale mock-ups of the upper and lower brackets out of cardboard. On the mock-ups, I noted the exact placement and size of holes and tangs. Along with a slightly damaged stanchion that I had liberated from a marina dumpster, I took these cardboard



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mock-ups to the welder. He fabricated the two brackets out of 304 stainless steel and cut the stanchion (soon to be a brace) to length. With the addition of a dozen or so stainless-steel fasteners, I was ready to install my creation.

First, the upper bracket was placed directly beneath the mast and through-bolted to the tabernacle on deck. Secondly, the former stanchion pipe was loosely bolted to the upper bracket's tangs and angled downward toward the aft-situated bulkhead. At this point, the lower bracket was attached to the pipe. The lower bracket was then situated on the bulkhead's outer support and temporarily fastened. Finally, after making sure that everything was properly aligned, I secured all fasteners.

I'm happy to report that my rig stays tuned and there is no flexing of the cabintop beneath the mast. I like that. As far as the cabin's interior is concerned, the 1-inch-diameter compression brace is hardly noticeable. It does not restrict the use of the V-berth or Porta Potti. The first mate likes that. 



The compression brace installed.



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boom so that if (*when*, as it works out) the boom slides along the crosspiece to the saddle, it will not mar that beautiful finish.

One final change completed the job. The short bungee has to serve two purposes: it holds the boom, furling leach, and gaff to the gallows when the full sail is furling. That does not require a strong hold. However, when I'm setting a reef in a blow, the boom must be very securely tethered to the gallows. I added a second toggle to the bungee.

The first provides the short section with firm tension, and the second and longer section provides just a moderate tension for the boom, sail, and gaff.

After a couple months of sailing, I had validated all of my reasons except the Pardey/Butler reason to avoid serious damage in case of a catastrophic halyard failure. I don't look forward to that test.

And so I declared the boom gallows project completed and 100 percent satisfactory. 



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## Am I seeing things?

When I was a magazine editor, the art director told me I could only see accurately to a sixteenth of an inch. He, on the other hand, could see a line of type was crooked at a sixty-fourth of an inch. I was impressed. However, the horizon of a seascape is always a straight line no matter what the waves may be like. Ripples or 60-foot giants, the horizon will be as something drawn with a ruler.

The March 2005 cover of that gorgeous cat looked wrong to me, and I studied it for several days. Then I noticed that the horizon line had a ragged edge on the left and a curved, wave-like edge on the right. I got out a steel edge and drew a line. The right horizon is almost a quarter of an inch lower than the left horizon. Digital enhancement?

The water looks real, and the reflection is undeniable, until about half an inch below the horizon on the right, and there it looks different. Will you put me out of my nit-picking misery and tell me what was done?

I truly enjoy the magazine. As my son (owner of a C&C Redwing) observed, "it's the first sailing magazine that has any relevance to me!"

**John Aitken**  
Belleville, Ontario

*Well, John, we were dumbfounded. We hadn't noticed anything strange. But once you mentioned it... Read on to see what Rob Rielly, the photographer, had to say.*

## Good vision!

You are correct. There was another boat ruining the shot, so I erased it in Photoshop. I had done it some time prior to submitting it and thought the shot would be inside the magazine and not on the cover where the increased size might give it away. I never noticed the changes I made until I saw the photo on the cover.

**Rob Rielly**  
Toms River, N.J.

## Experience with alkyd house enamel

I just purchased the March 2005 edition of *Good Old Boat* and enjoyed the information it contained — even though we are powerboat owners. I especially related to the article on removing teak decks by Doug Elliott. We went through a similar experience with our last boat, a wooden 38-foot DeFever Trawler.

The author indicates that using alkyd house enamel might work just as well as Awlgrip LP at 20 percent of the cost. We used the house paint on our old paint for the decks. It looked good right after the application, but we discovered that it had to be painted yearly.

Our current boat, a 55-foot Hatteras, was painted professionally a year ago with Awlgrip; the decks were sprayed with Awlgrip nonskid. After a year, the Awlgrip decks look like they just came from the factory. Awlgrip is far superior to oil-based paints, especially for the decks. There is virtually no indication of wear on the decks, even in heavily traveled areas. After going through all the prep work, I wouldn't hesitate to go for the best quality of paint available.

Regarding the color of decks: stark white is extremely cool in the high temps of the tropics. Even a light shade of

gray is uncomfortable to walk on without shoes. Our dogs appreciate the stark white decks as they rarely wear shoes.

**Tom Blandford**  
Ensenada, Mexico

## Rationally vs. aesthetically...

Your March 2005 issue highlights again why I'm a happy subscriber to *Good Old Boat*. I greatly appreciate the article you ran, "Removing the teak deck." Including the gory details of such a job takes up a lot of print space but is invaluable for sailors about to tackle similar tasks. I've been balancing whether to purchase a boat with a teak deck, which — with the proper maintenance — could be rather attractive vs. a more mundane non-skid deck. Rationally, I'd prefer the non-skid. Aesthetically, I much prefer teak. The article made the decision much easier.

Ted Brewer's sail plans, adding a deck wash, and dinette conversion are also articles that deserve mention. Heck, the whole issue was great. Thanks for publishing a magazine that is so different from everything else out there.

**Nick Sebrell**  
New York City, N.Y.



## Use the correct strainer

The article on "Adding a deck wash" (March 2005) offers good information and is very helpful for boatowners. Thank you for showing the SHURflo Blaster pump for the washdown application. One thing we do recommend is that the pump strainer model 170 (shown belowdecks with the pump) must *not* be below the waterline. The positive pressure might cause a leak since that particular strainer was not rated for positive pressure. The strainer showing with the pump is designed for a freshwater application. There is a raw-water strainer designed for saltwater washdown in conjunction with the SHURflo pumps (shown in photo above).

**Alfonso Macias, applications engineer**  
SHURflo LLC

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## Mail Buoy



### More on the toggle hitch

To add to Jim Martin's description (March 2005), it is the standard way to attach a lifeboat painter (bow or stern line) to the thwart. Ships' lifeboats don't usually carry

cleats, and their forward painter remains permanently attached to the ship. When the lifeboat is launched, its engine started or oars ready, and with all crew embarked, pulling the toggle allows it to clear the ship's side without delay.

A word of caution: the hitch can come adrift if not tightened properly or if the line is not under constant tension, especially with slippery synthetic lines. This is less of a problem with natural fiber ropes. My preference when towing is to keep a sharp ax near the tow line — I would not trust the toggle to remain in place in rough seas or when maneuvering in port.

**Moshe Tzalel**  
Ann Arbor, Mich.

### Robert Perry checks in

Thank you and my old pal, Ted Brewer, for the nice article on the Tayana 37 (March 2005). It made me feel good to see the boat appreciated. I was 28 when I designed the Tayana 37. There was one small error in the piece and, in the interest of historical accuracy, I would like to correct it.

The CT 37 was called the CT 37 initially because it was felt that the new model needed the credibility of the CT

name in order to sell. The Ta Yang ("Ta," pronounced "da," meaning "big" and having nothing to do with the Mandarin possessive "de") was a brand-new yard, and it was partly owned at that time by the Chen family of Ta Chaio, "big bridge" family. As soon as the boat began to sell, the new yard decided they could do it on their own, and the name was changed from CT to Ta Yang. I think Tayana was a way of giving Ta Yang a more marketable sounding name. I am going into great detail on this stuff in my new book soon to be published by International Marine.

I would also like to commend you on the Dan Spurr article on Morgan Yachts (also March 2005). Dan is as good as it gets on these historical pieces and I treasure his efforts. His book *Heart of Glass* is a must read for every fiberglass boatowner.

**Bob Perry**  
Seattle, Wash.

### Sense of humor at Forespar

It's good when we can laugh at ourselves. And it's better when we can share the joke with others. So we were charmed when the folks at Forespar sent an April Fool's joke masquerading as a news release... even better when part of it was true! The humorous text accompanied a photo of a couple of "wood-be spinnaker poles" (oops, sorry, we couldn't help ourselves either) made of carbon fiber but made to look traditional with a wood-grain faux spruce simulation on an Awlgrip-painted surface.

The release stated, "Shown below is a picture of a very



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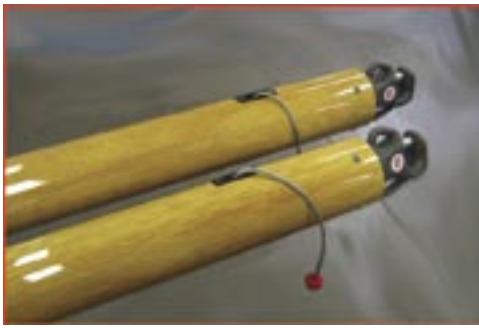
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**Editors**

### Head knocker

Your "Standing headroom" story (March 2005) brings to mind the C&C 33 which, as with the 30 you mention, has a teak beam that's a real head knocker for anyone over 5 feet 6 inches. The reason more 33 MK I boats weren't sold was due to the restricted headroom forward caused by the very attractive cabin rise from the foredeck to the mast. The

34, which followed in 1988, had much more headroom but not nearly so attractive a cabin line. We sold a reasonable number of the 33s but probably three times as many 34s. Mike and Rhea Dow were the first customers I sold a boat to at a boat show ... Annapolis 1975. Neither was over 5 feet 4 inches. Mike walked the full length of the cabin, announced, "Not a problem for me," and bought the boat.

**Jack Culley, Sailboats Inc.  
Superior, Wis.**

### Not all boats will knock you out

In the March 2005 issue, you were lamenting the lack of headroom in your C&C. Have you ever reviewed the CS 27? I have one with a shoal keel that I transport on a trailer quite easily. I am 6 feet and have full headroom in the main cabin. (Well, mostly. My hair brushes the headliner.) This was one of the reasons I bought this boat. How many others in this size range have full headroom?

**Alan Stevens  
Almonte, Ontario**

### Step-down keels

The article on the American 23, by Gregg Nestor in the March 2005, issue was interesting. I hadn't realized that its designer, Arthur Henry, had a patent on some part of the idea of the "step-down keel." I'd be interested to learn what aspect was patented, as he was surely *not* the inventor of wide, hollow keels into which one stepped down for increased headroom.

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The first time I came upon the idea was in Gilbert Dunham's 26-foot High Liner (*Yachting*, January 1950), a design that still looks sleek after more than half a century. This boat, I gather, was itself based on some earlier experimental ver-

sions. Perhaps there were even older instances. Dunham & Timkin also made use of the feature in some larger designs in the '50s (*Yachting*, March 1953). I suppose that if the Reinell Boat Company's RS2600 appeared in 1957, it must have been the next boat to utilize the idea. However, in the 1957 *Sailboat & Equipment Directory (SED)* it was touted as a "new-comer," and I haven't found it in any earlier publications.

As far as I previously knew, after the Dunham designs the idea had next surfaced in the Heritage class designed by Andres Davidhazy (*Yachting*, February 1967), a pretty little 20-foot sloop with long overhangs, reminiscent of a larger CCA design. In this boat it literally was used to provide "headroom" — it was the location for the head below the normal cabin sole. It was also used in Alan Payne's attractive Columbia T-26 (*SED*, 1975), which underwent several changes of name over the years as produced by different builders. This boat presumably would have been introduced in the same year as the American 23 and 26 (the 26 appeared in the *Cruising World Annual* of 1975), though the first year they appeared in *SED* was in 1976, along with a motorsailer version of the American 26. The step-down keel was also used in Shad Turner's Lancer 28 and possibly in the Lancer

25, though I cannot find drawings for it. Did Davidhazy, Payne, and Turner actually pay royalties to Henry, or did they do something different enough to get around the patent? And did Dunham get nothing out of it?

The next question is why it never became more popular? It doesn't sound like an altogether silly idea, at least for a small cruising boat. I would love to hear some comments from our erudite designer-in-residence, Ted Brewer, who to the best of my knowledge has not tried out this configuration. Or has he? And if not, why not?

**Sifford Pearre**  
Halifax, Nova Scotia

### Bristol 29 site

I have started a restoration site detailing a major refit and restoration for my 1971 Bristol 29. I have made extensive improvements to the boat, as detailed in: <<http://www.bristol29.com>>. All owners and admirers of older Bristol Yachts are welcome.

**David Browne**  
Maitland, Fla.

*David notes that the 29.9 (featured on Page 10 in this issue) is a different, more modern, boat than the 29.*

Send questions and comments to *Good Old Boat*, 7340 Niagara Lane North, Maple Grove, MN 55311-2655, or by email to [jerry@goodoldboat.com](mailto:jerry@goodoldboat.com).

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# Magical moments

## *Dreaming of green flashes and northern lights*

by Karen Larson

NORTHERN LIGHTS ARE JUST BELOW THE GREEN FLASH ON MY LIST of rare and delightful phenomena. There may be some doubt in some circles about the reality of the green flash, but northern lights do occur, we're all absolutely positive. Yet they don't occur frequently enough to be taken for granted. More importantly, they last long enough when they do occur for there to be no doubt in the minds of any who are lucky enough to catch them.


I don't want to know how many times I was *not* lucky enough to catch the northern lights. I'm sure I've often missed the show because I was sleeping. The action can only be seen when it's dark, and in the northern summer it's not dark until late. The green flash has the advantage of predictability in that sense. If you will see it at all, that moment occurs during your waking hours...

during, in fact, a very restful portion of most people's days.

Although they may be less predictable, northern lights are showier. In their most glorious moments, the visual and emotional spectacle is mesmerizing, momentous, magical,

mystical, moving. This is a phenomenon so rich and compelling that all other activity is brought to a standstill. This is a light show that puts all earthly electronic versions to shame. In spite of regularly cruising north-

ern waters, I haven't had this opportunity often. Not nearly often enough.

I hope some day to see the green flash. I believe it is a phenomenon just as real. But — if given a chance to catch only one just once more in my lifetime — I'll choose the northern lights. 

“This is a phenomenon so rich and compelling that all other activity is brought to a standstill.”



# Why my boat is not an 'it'

## Making the case for a feminine pronoun

by Susan Peterson Gateley

**I** WONDER WHY PEOPLE REFER TO BOATS AS 'SHE.' WHY NOT CALL it an 'it,' " a charter guest aboard our sloop asked me one day. I shrugged and muttered something about the romanticism of the sea and sailors and admitted that I really *didn't have a clue* as to why boats seem to have a gender. Then, a few weeks later on a windless afternoon during a long, boring, slow passage under power with plenty of time for pondering, I came up with a possible explanation.

I think one reason for the ancient and widespread tradition of personifying boats as "she" (or, I assume, in some languages as "he") is fear. Back when the world was vast and peopled by only a few million widely scattered humans, an open-water passage in a small frail vessel made of wood, reeds, or hides and powered only by uncertain winds had to be a scary affair, especially if the mariner sailed alone.

Faced with that situation, I suspect the ancient mariner probably did what lonely imaginative kids do to this day. For moral support he conjured up a "secret pal" in the form of a being or spirit inhabiting his hull. This little psychological crutch made good sense then as it still does today. If you can imagine that your boat possesses some sort of being or sympathetic presence, you can also imagine that she (he? it?) also, like you, is interested in continuing to survive. Now you're not alone anymore. You're both working together to make it to a safe harbor.

Believing in a fellow being who shares your goal of reaching the other shore is an extremely powerful self-help tool for the timid souls among us who venture forth with small ships on big (or not so big) waters. Besides, thanks to the behavior of boats afloat, it's easy for many folks to delude themselves about the presence of a life force in that hull. Boats move in unpredictable, irregular, even mysterious ways as wind and waves nudge them about.

### Rational behavior

I know it's just metacentric forces, prismatic coefficients, centers of effort, and centers of buoyancy, but it's more fun to see it as sentient, rational behavior when your boat

feels a wave and rises to it, surging and lifting upward like a horse leaping a hurdle. We can't see all the precise forces that act on a hull, so the illusion of purposeful movement comes easily to some of us as we sit at the helm supervising all those vectored forces while watching that questing prow before us.

Even though I know my inanimate boat doesn't "feel" anything in an emotional sense, in one way there truly is purpose and rational expression of behavior in her interaction with wind and wave. Her response to a gust of wind is a direct result of the experience, knowledge, and judgment of a man — dead now for several decades — who designed her. When my little sloop reacts to a puff of wind by working up to weather with just a touch of helm, she seems eager and willing. She is then embodying that naval architect's priorities, experiences, and judgment.


My boat under way is as much a piece of kinetic art as any of those peculiar sculptures you see moving and clanging in the breeze in city parks or shopping malls. And when she yields to the push of a wave or leans away

*"When she yields to the push of a wave or leans away from the wind and puts her rail down just so far, there is purpose here . . ."*

from the wind and puts her rail down just so far, there is purpose here: the purpose of her human creator who knew how

he wanted a hull to react to a given force. My boat is a crystallization of his intangible craft.

I don't have any problem at all endowing my boat with a personality. The angles of her hull, distribution of her various weights, position of sail plan, shape of her rudder, and keel were all created by human intellect. This product of mathematical equations when under way is an active expression of her creator's mind. I truly believe my little vessel carries a bit of her designer's soul with her, just as any good work of art or craftsmanship does.

She is a vessel holding the spirits of her designer, her builder, and to a lesser extent, those who have rigged, equipped, modified, and used her through the years. Each of her owners has also left his or her mark upon my 50-year-old boat. Put all those pieces of human ingenuity and creativity together and why not call my boat "she"? It surely makes me feel better on a long, lonely, night passage! 



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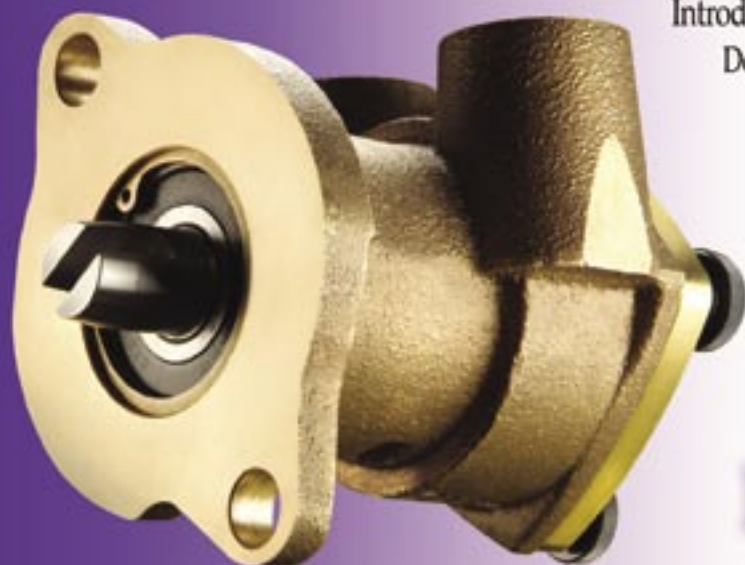
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