HANDS-ON SAILOR

Practical solutions and techniques for the bluewater sailor

***Rari*, a Baba 30, successfully rode out Hurricane Marty at anchor, faring better than many of the other boats in Puerto Escondido.**

CAROLYN SHEARLOCK

SPECIAL REPORT BY CAROLYN SHEARLOCK

Ultimate Storm Anchoring

U.S. West Coast cruisers share their experiences after a wayward hurricane teaches them a lesson in how to stay put—or not

HURRICANE MARTY RAKED THE Sea of Cortez on September 22 and 23, 2003, hitting most of the harbors where cruisers congregate. In La Paz, two marinas were virtually destroyed; more than 80 boats suffered serious damage or were total losses. At the small marina in Santa Rosalia, docks broke apart and one boat fetched up on the beach. In San Carlos, four boats went aground, docks broke loose, and several boats in dry storage were knocked over. Puerto Refugio, in the sea's northern reaches, didn't live up to its name: Two of the five cruising boats anchored there were driven ashore, with one damaged beyond repair; the other three all suffered damage from the 8-foot waves (see "Surviving a Bout with Big Bad Marty," December 2003).

My husband, Dave, and I chose Puerto Escondido as the hurricane hole for our Tayana 37, *¿Qué Tal?*. Weather forecasts had predicted that the center of Hurricane Marty would pass about 60 miles to our east. In that scenario, winds would have backed from the east to the north and then to the west. The storm actually passed directly overhead. We had winds from the north, the calm at the eye, then winds from the south. When the eye crossed overhead, a number of cruisers thought that the storm was ending.

The inner harbor of Puerto Escondido has always been considered a great hurricane hole. To the west is the Sierra de la Giganta, towering over 3,000 feet. The north, east, and south are also protected by high hills, and the entrance channel is only 65 feet wide and twisty. There are only two spots where wind can enter; these areas of low land connecting the hills are called the Windows. Although these low land bridges block the open fetch for waves, many boats reported seeing 4- to 6-foot waves inside the anchorage, which is about a mile in diameter. Just outside the entrance channel is an area called the Waiting Room, which has less protection from the south but more from the north—or so cruisers thought. In this, reportedly the first hurricane to hit Puerto Escondido directly, sailors discovered that the hurricane-force winds coming out of the north and northeast tended to funnel through the entrance channel and slam into the boats in the Waiting Room. In general, these vessels had a rougher time than those in the inner harbor.

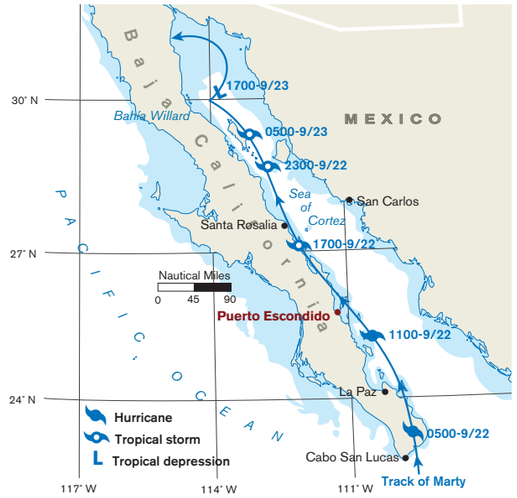
The inner harbor on average is about 45 feet deep except in the few coves around the perimeter. Most of the shore is rocky, although there are patches of mangroves.

The Waiting Room has a predominantly sand bottom and is surrounded by mangroves. There's a rock jetty on the north side of the ellipse where the dinghy dock is;

About 80 boats lay to anchors or moorings in Puerto Escondido, the best hurricane hole on the Baja California coast of the Sea of Cortez, when Hurricane Marty paid a visit in September 2003.

around the perimeter of the ellipse itself is a concrete seawall that also borders the west side of the Waiting Room.

Several years ago, The Moorings had a charter base here, and many of the company's old moorings still lie on the bottom. Cruisers have discovered these and have used them over the years, believing them to be solid. Other moorings have been created more recently. Approximately a quarter of the 80 or so boats in Puerto Escondido during Hurricane Marty used moorings. The rest were on conventional anchoring systems.



Aftermath

When it was all over, 10 of the boats were aground, and seven others sank after being thrown into a rock jetty. Three more had been swept through the entrance channel; one reset its anchor in the middle of it, and the other two were found several miles away. Both sustained serious damage. However, none of the 24 boats with people aboard during the storm ran aground or suffered serious damage.

At least 10 of the occupied boats dragged as the storm passed directly overhead with sustained winds over 70 knots and gusts to 82 knots. All but one were able either to get

Hurricane Ground Tackle on *¿Qué Tal?*

We're not egotistical enough to think that we've devised the "perfect" storm anchoring system, but after being in Hurricane Marty and also in Tropical Storm Ignacio last year, we upgraded our ground tackle for our continued stay in the Sea of Cortez.

***¿Que Tal?*, a Tayana 37, shows off her post-Marty anchoring armament (above), which now includes a kellet (right) made up of boat bits.**

Our primary rode is 300 feet of 5/16-inch high-test chain. It's now (since Marty) attached to a 66-pound steel Spade. If it's required, we can extend its scope with a new 100-foot length of 5/8-inch three-strand nylon.

Our secondary anchor and rode is a 44-pound Bruce on 100 feet of 5/16-inch high-test chain and 200 feet of 5/8-inch three-strand nylon.

Since Marty, we've made a 30-pound kellet by attaching dive weights with cable ties to our mushroom dinghy anchor. It rides down the anchor chain on a shackle.

We'll have a primary snubber and two sets of backups in case any break. The primary, developed since Marty, consists of 35 feet of new 1/2-inch three-strand nylon. An eye in one end shackles to the base of the bobstay; the other end is tied to the chain rode with a rolling hitch. With this attachment point, the bobstay is less likely to chafe through the snubber, and we hope it will also result in a smoother ride for the boat.

We also have a pair of snubbers made from 35 feet of new 1/2-inch three-strand nylon, which we'll tie to the chain rode with rolling hitches and lead through hawse holes to sturdy deck cleats. We'll cleat the bitter ends of the rodes securely around the samson posts and pay out enough slack in the chain so that even as the snubbers stretch, the chain won't become taut and possibly damage our bow platform. Backing up the primary snubbers will be two more identical, but previously used, snubbers attached to the chain in the same way but with 5 to 7 feet of slack in them.

For chafe gear, we'll continue to use double layers of reinforced hose.

We're looking into the possibility of using a small riding sail to decrease the boat's yawing.

C.S.

CAROLYN SHEARLOCK, MAPS BY DAVID NORTON

Individual Experiences

A total of 18 boats responded to our questionnaire. Here are the details from a sampling of their experiences.

¿Qué Tal?, our Tayana 37, lay to a 44-pound Bruce on the southeast side of the inner harbor, where the waves built to 4 feet. Our rode was 290 feet of 5/16-inch high-test chain attached to samson posts. Two 1/2-inch three-strand nylon snubbers tied to the chain with rolling hitches led through port and starboard hawse holes to nearby deck cleats with double layers of reinforced hose for chafe protection. On the night before the storm, the second anchor, a 45-pound plow on 50 feet of high-test chain and 250 feet of three-strand nylon, fouled the primary anchor rode and snubbers. We were working to untangle it when the storm hit. Unable to get the second anchor back on deck, we lowered it so its rope rode, rather than its chain, lay against the snubbers on the primary rode. During the time in which the eye of the storm passed, we retrieved the second anchor and repositioned the chafe gear. Our main anchor held.

***Kindred Spirit*, a Tayana 42, dragged early in the storm, but her crew was able to reset the anchor in the eye.**

Tuugaalik, a 34-foot True North with a man and a woman on board, lay to a 60-pound plow anchor (not a CQR) on 270 feet of 5/16-inch high-test chain in the center of the inner harbor. For a snubber, they used 1/2-inch nylon led through hawse holes in the hull and protected with rubber hose. The bobstay wore through the chafe gear on the snubber during the first two to three hours of the storm. The boat dragged 1,000 yards. The crew tried several resets but none held. They couldn't deploy the second anchor, a 35-pound plow, because the woman didn't have the strength to handle the tiller or to do the foredeck work. They tried motoring to stay off the shore, but they didn't have enough power and were only saved from going on the rocks by the arrival of the storm's eye. They reset during the eye, dragged again in the second half, and used the engine to reduce the load on the ground tackle.

Sarah Elizabeth, a 38-foot Ericson with two people on board, set a 44-pound Bruce on 225 feet of chain in 45 feet of water in the inner harbor. Their three-strand nylon snubbing bridle was hooked onto the chain and led back to on-deck cleats. The chafe gear was hose. About three hours into the storm, they dragged about 400 feet, and the snubber chafed to one strand. They put out the backup anchor, a Danforth on 40 feet of chain and 110 feet of 3/4-inch nylon, which stopped the boat from dragging. During the eye, they made new snubbers and pulled up both anchors and reset them in the middle of the bay.

Rari, a Baba 30 with one person aboard, anchored in 48 feet of water in the middle of the inner harbor to a 44-pound Bruce on 310 feet of 5/16-inch chain plus 50 feet of nylon rode. *Rari* also had a 5/8-inch snubber shackled to the chain and protected with heavy-wall heater hose and "lots of duct tape," said the skipper. Once the wind direction was established in the first part of the storm, he set a 33-pound Bruce on 30 feet of chain and 270 feet of 5/8-inch nylon similarly protected and readied a 22-pound Bruce in the cockpit. In the eye, he retrieved the second anchor and prepared to reset it after the wind shift, but he didn't need to. There was some wear on the chafe gear, but he reported that everything worked as he expected.

Summerwind, a 41-foot Hardin Sea Wolf ketch with two people on board, chose to lie to a mooring in the Waiting Room. The mooring had a 70-foot pendant of polypropylene to which they attached a bridle of 1 1/4-inch mega-braid protected by fire-hose chafe gear and triple clove-hitched to samson posts on deck. The boat dragged 200 feet. The crew put out a 45-pound CQR anchor on 50 feet of 5/16-inch chain, then during the eye added a 44-pound Bruce on 175 feet of 5/16-inch chain with a 1-inch triple-braid nylon snubber and reinforced vinyl hose as chafe gear. The rodes wrapped. They motored for eight hours. About 12 to 15 times, the boat heeled to 40 degrees with water over the gunwales. After the storm, it took two divers a day to untangle the mooring and anchors.

Calliope, an Ericson 36C with two people on board, was also on a mooring in the Waiting Room, hanging off its 50-foot pendant. When the boat began to drag the mooring, the crew tried using the engine to hold them, but it didn't have enough power. They deployed a 35-pound CQR on 185 feet of chain (of 300 feet total) to which they attached a short snubber with a chain hook. The chafe gear on the snubber was fire hose. They then put out a 24-pound Danforth on 20 feet of chain and 100 feet of line (of 300 feet total) that they attached to the samson post. This rode had no chafe gear. The boat stopped inches short of the mangroves. The early arrival of the storm surprised them before they'd finished stripping the dinghy, which was on deck, and everything blew out of it. During the eye, they hauled back 10 feet of chain. Winds in the second half weren't as strong, and they had no more problems.

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their primary anchor to reset, to deploy a second anchor, to reanchor, or to motor to stop their movement. For some boats, the eye provided a needed break to get things under control. At the same time, those of us fighting the storm had two things in our favor: The hurricane moved rapidly past us, lasting only 12 hours, and the winds began picking up shortly after 0800 and died around 2000, giving us daylight to see what was happening. Had the storm raged longer or hit during the night, more boats certainly would have gone aground.

Post-Game Analysis

In the days following Hurricane Marty, I collected information from 18 of the 24 manned boats about their ground tackle. We all wanted to know what had—and what hadn't—worked, from the choice of anchor and rode right up to the chafe gear and the attachment points.

The bottom in Puerto Escondido is mud; most boats were anchored or moored in about 45 feet of water. Furthermore, although most parts of the anchorage had full 360-degree protection from large waves, with just a mile of fetch, the waves often built up to 4 to 6 feet.

Of the 18 boats that completed my questionnaire, 11 had been on anchors and gave details about their choice of primary anchor, the rodes, snubbers, and chafe gear they used, and how these elements were attached to each other and to the boat. As several crews discovered, the system will fail at any weak point. This meant that some people had great stories to tell after it was all over, but everyone's real goal was to have no problems at all.

Five of these boats used CQR/Delta/plow anchors. Three dragged, and one couldn't get the anchor to reset and couldn't deploy a second anchor; the other two had to deploy second anchors to stop dragging.

Six boats used Bruce or claw anchors. Two of them dragged; one had to put out a second anchor to stop dragging; the other reset and held.

Two boats used two anchors on a single rode. One dragged early in the storm; that crew pulled up the anchors and moved and reset them; the anchors then held and presented no more problems.

Five boats had significant chafe problems; several others had minor chafe. One boat had a snubber break at a non-chafe point.

Four of five boats that deployed a sec-

ond anchor during the storm (not as a planned dual-anchor arrangement) had problems with them fouling; two boats that had rigged a secondary anchor to be released from the cockpit also had problems with fouling.

Of the seven responding boats that had been on moorings, two dragged, and one other had a potentially serious situation with a swivel on the mooring; the dragging boats each deployed two other anchors and motored to avoid being blown ashore.

Several of the boats that went aground had been on moorings; in more than one case, a corroded shackle that broke was the culprit. Also, from discussions with other cruisers right after the storm, it seems that one or two other manned boats using plow-type anchors also had problems with dragging, but these crews were among the few who didn't return the questionnaire. Another unmanned boat that dragged over three miles had been using a Danforth-type anchor.

To Motor or Not?

Most of us thought that motoring into the wind would relieve the strain on our ground tackle. Almost all the boats tried it at some point, and virtually all decided it may have actually caused more stress: As slack developed in the rode, the bow would fall off, then jerk hard on the ground tackle. Everyone who tried motoring felt that it was good only as a desperation move if the boat was already dragging or to maintain clearance from another boat or the shore. Two of the boats that motored because of dragging discovered that they didn't have enough power to make headway—or even to stop the dragging. That said, many boats ran their engines through most of the storm so that if they needed to motor, they could do so instantly.

Conclusions

Two important observations that a number of cruisers made: You have to have your very best ground tackle and backups out when the storm hits. Once the wind begins to pick up, there's no way to make any changes.

Also, you have to be prepared early: Overnight, Hurricane Marty had accelerated from 4 knots to 20 and hit on Monday morning instead of Monday afternoon. Several cruisers had planned to stow dinghies, take down the last bits of canvas, add more chafe gear, or attach an extra snubber on Monday morning. They didn't get the chance.

While there can never be a definitive study determining the perfect ground tackle for all boats, my husband and I and all the sailors I spoke with in Puerto Escondido felt strongly that we wanted to report our experiences to other cruisers. We learned from those who faced hurricanes before us; now it was our turn to add to the cruising knowledge base. Almost all of us concluded that we'd make some changes to our storm anchoring if we thought we might have to ride out another hurricane.

Carolyn Shearlock and her husband, Dave, have spent two summers in the Sea of Cortez. During that time, they've stayed put through three chubascos, one tropical storm, and a hurricane. They're presently heading for Central America.

Lessons Learned

Moorings: If you plan to use a mooring during a hurricane, dive on it yourself before committing to it, and verify that it's large enough to hold your boat. Also, closely examine all shackles, lines, or cables, and replace any that look even slightly questionable. The biggest problem with using a mooring is that if it begins to drag, any secondary anchor that you put out will probably foul.

Snubbers: Bigger isn't necessarily better. Snubbers have to be sized so that they'll stretch with the force of the storm and provide elasticity in the ground-tackle system to avoid sudden jerks, which can pull your anchor loose or rip out your bow platform or deck fittings. We had independent snubbers on *¿Qué Tal?* leading to the port and starboard sides. Made of 1/2-inch-diameter three-strand nylon, they worked well.

For the next storm, we intend to have backup sets already in place, because we now know that we can't put another out if one breaks at the height of the storm.

Kellets: Three boats used kellets during Hurricane Marty, and all crews thought that they helped their boats ride better and increased the holding power of their anchors. In its simplest form, a kellet is a weight hung about halfway down the anchor rode. We didn't use one in Hurricane Marty, but we plan to in the future. It's fairly easy to make one quickly using a dinghy anchor with either an extra piece of chain wrapped around it or dive weights attached with cable ties or light line. Tie a long light line to a large shackle, put the shackle over the anchor rode, and attach the kellet. Pay out sufficient line so that the kellet can slide down the rode about halfway to the anchor. Put chafe gear over the line, and cleat it off securely.

Chafe Gear: Old fire hose and double layers of reinforced hose seemed to work best. Several boats that used only a single layer of reinforced hose had problems. We were all amazed at how much lines stretched—just in the 3- or 4-inch gap between deck cleats and hawse holes or chocks—and how many times we had to slide the chafe gear back into position. Next time, we'll try to tie the inboard end of the chafe gear to the cleat to hold it in place, and we'll check on the chafe gear for both wear and position every 15 to 30 minutes.

I made the chafe gear on *¿Qué Tal?* from a double layer of reinforced hose with a line in one end to secure it to our snubbers. I slit several pieces of hose lengthwise for spares. Had we needed to use them, we would have slipped them over the line and used duct tape to hold them together.

C.S.