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At Ease at Anchor

At Ease at Anchor

With *Bosom Buddy,* our Pearson Vanguard sloop, securely anchored in 30 feet of water in the lee of Power Squadron Spit at Cape Lookout, N.C., my wife, Joyce Sanford, P, and I enjoyed afternoon cocktails in the cockpit. A fresh southwest breeze kept the bugs at bay while we watched the sun set.

A few yards to port, we noticed a sailboat slowly drifting downwind stern first, dragging its anchor. Oblivious to his impending predicament, the boat's captain was lounging in the cockpit with his own beverage. As he drifted past, he cupped his hands to his mouth and hailed us. "Captain," he called across the water, "I think you're dragging anchor!"

During our 2½ years of live-aboard cruising from Cape Cod, Mass., to the central Bahamas, we have seen all sorts of ludicrous and sometimes downright dangerous anchoring practices. You can tell a lot about the seamanship of captains and their crews by the way they anchor. Anchoring is an art in which practice makes perfect.

We perfected our anchoring technique during the 10 years we spent preparing ourselves for cruising. Our preparations must have paid off because we have never had an anchor drag in hundreds of anchorages.

Experience has taught us that good anchoring depends on having quality ground tackle of the proper kind and size, and the knowledge and experience to use it correctly. When our boat is securely anchored, we have peace of mind and can relax.

Part 1: Why Anchors Hold

In the glory days of sailing ships, the anchor pattern that pleasure boaters now call "the yachtsman" was the standard. Its holding power depended on its weight and one relatively small fluke. Today, burying, or lightweight (LWT), anchors are the overwhelming choice for small boats.

The flukes on LWT anchors are designed to force the entire anchor to dig into the bottom. The harder the pull, the deeper they bury and the greater their holding power. They are lighter than yachtsman anchors of equal holding power and are easier to stow. High-quality LWT anchors are designed and manufactured to surprisingly close tolerances, so a change of only a few degrees in the angle of the flukes can significantly reduce an anchor's holding power.

Anchors are not effective unless the pull on them is as horizontal as is practical. If the pull is too vertical, an anchor will either drag across the bottom without digging in or dig in only to be pulled out at the least bit of strain.

One frequently asked question is, "How big of an anchor should I carry on my boat?" An important question that often isn't asked is, "How many anchors should I carry?" Consult the manufacturer of your anchor for an answer to these questions. The size, displacement, type of boat and its intended use are important considerations. To be cautious, use working anchors one size larger than the manufacturer recommends. Each boat should also be equipped with one or more storm anchors at least two sizes larger than the recommended working anchor. A "lunch hook" that's a size or two smaller than the working anchor comes in handy for short stops in light conditions with little or no current.

In the next installment of *At Ease at Anchor,* I will examine different kinds of anchors and their relative merits. New anchors are invented daily, so you should buy the kinds and number of anchors that best suit your needs.

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At Ease at Anchor

Part 2: Anchor Types and Rodes

Last month, I explained how and why anchors work. In this article, I will examine several types of anchors and give an introduction to rodes.

Today's boaters have many choices when considering ground tackle, which consists of anchors and the chain, line and items needed to employ them.

First, let's look at anchor types. Although new anchor designs are marketed continually, a few have withstood the test of time. (Remember, if you expect to encounter different bottom types, you should carry more than one type of anchor.)

One of the most popular anchors is the Danforth. Lightweight compared to its holding power, the Danforth is superb in sand and mud, and its flat configuration makes it easy to carry aboard. The high-tensile Danforth doesn't necessarily have more holding power than the standard model, but it will endure more strain. However, the Danforth doesn't set well in hard bottoms, and grass can keep it from reaching the bottom. There are many similar lightweight anchors on the market, including the Fortress, which is aluminum. In a strong current, the broad flukes of the Danforth and other lightweight anchors can make them sail through the water rather than sink to the bottom.

Another burying anchor is the Simpson-Lawrence CQR plow anchor, an old standard of cruising sailors. (CQR is a sort of phonetic abbreviation for the word "secure.") The CQR is manufactured in Scotland of drop-forged steel in the shape of a plow, but with a hinged shank. As with other burying anchors, the greater the pull, the deeper it buries. Because it is more three-dimensional than many lightweight anchors, the CQR is more difficult to stow and is best carried on an anchor platform. The manufacturer claims this anchor will reset itself if a change in pull trips it. Although it may not bury in hard bottoms, this anchor is more effective in grass than other lightweight anchors.

The Bruce, another burying anchor, came on the market more recently but has attracted a large following. According to the manufacturer, the anchor will reset itself if tripped. However, it doesn't do well in hard bottoms, and the shape of the flukes makes it vulnerable to fouling in heavy grass. Three-dimensional like the plow anchor, the Bruce anchor requires an anchor platform for stowage.

The yachtsman, or kedge, anchor works well in sand and mud, and is better in hard bottoms and grass than other anchors. It has to be much heavier than burying anchors to achieve equivalent holding power. When properly set, this anchor has one fluke buried while the other sticks up out of the bottom, which makes it possible for the rode to wrap around the exposed fluke and unintentionally trip the anchor. The yachtsman is also difficult to stow unless it can be disassembled, and most can't. However, the solid bronze Luke yachtsman anchor can be disassembled into three pieces for easy stowing.

The grapnel anchor works well on rock bottoms as its narrow tines are more likely to snag small crevices while other anchors will slide over the bottom. A small grapnel with soft tines is useful when temporarily anchoring on reefs or wrecks. A moderate amount of strain will straighten a fouled tine so the anchor can be retrieved and straightened for future use. West Marine carries a Mighty Mite grapnel that has malleable aluminum tines. Obviously, grapnels should be used only for short periods in settled weather and calm seas.

No anchor is effective unless it is securely attached to the boat. The line and chain that connect the anchor to the boat are called the rode. A line rode typically consists of a twisted nylon line with an eye splice around a thimble connected to several feet of chain. The chain is, in turn, shackled to the anchor's shank. When selecting ground tackle, choose chain, thimbles and shackles of the appropriate size, material and working load. Shackles and thimbles come in galvanized or stainless steel. The threads of the shackle pins should be lubricated with waterproof grease, and the pins should be immobilized with wire of the same type to prevent them from loosening and backing out. A hole in the unthreaded end of the shackle pin serves that purpose.

Many anchoring problems are caused by using too little chain. A good rule of thumb is to use a chain half the length of the boat. The chain prevents the line from being cut or chafed by sharp objects on the bottom and serves as a weight to keep the pull on the anchor as horizontal as possible. (The more horizontal the pull, the easier the anchor will set and the better it will hold.)

Twisted (laid) nylon is best for anchor rodes because of its strength and elasticity. The stretch prevents the anchor from being jerked off the bottom, and eases stress on the boat and its fittings. The rope should be of medium lay (neither too limp nor too stiff), so it is easy to stow, handle and splice. Select a rope size with a working load that is appropriate for your boat. The USPS Seamanship manual has a table of rope strengths, and several marine catalogs and anchor manufacturers provide suggested rope and anchor sizes for various boat sizes. A rope's working load is rated at 20 percent of its breaking strength. A too-small anchor line will easily be overstressed, while a too-large line will not have enough stretch. An overstressed line should be replaced. The lengths and numbers of anchor rodes you should carry depend on the type and depth of waters in which you anchor.

Next month, I will continue to discuss ground tackle, emphasizing rodes and the gear to handle them. Knowing what and how much ground tackle to carry is an important safety consideration when fitting out any boat.

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At Ease at Anchor

Part 3: More on Anchors and Rodes

This month we continue our discussion of anchors and rodes. When deciding what type of line to have aboard, consider polypropylene for only three uses: as a dinghy painter (bowline), a water ski towline and a safety line for trailing astern when swimming, diving or sailing single-handed.

Because polypropylene's buoyancy makes this type of line less likely to tangle in a propeller, the USPS Seamanship manual suggests using it for towing a vessel astern. Though polypropylene is acceptable for this use in calm seas, its lack of stretch can cause fittings to fail in moderate seas.

Hard on the hands, polypropylene is also slick, making it difficult for knots to stay tied. Even brief sunlight exposure causes polypropylene to become brittle and lose strength.

Chain rodes, which are usually found only on larger vessels, can be considerably shorter than nylon rodes because their weight helps keep the pull on the anchor horizontal. When choosing chain rodes, select hot-dipped galvanized chain rated for a sufficient working load.

To prevent rodes from going overboard, attach the bitter end to the boat with a cord that will secure it under normal conditions but allow it to break under heavy strain. Especially important with a chain rode, this tether could save your chain and anchor, while preventing a runaway chain.

You'll need an anchor windlass when using chain rodes. A two-speed manual windlass with rope and chain gypsies will handle both chain and nylon rodes and give you power when you need it, even if you lose electricity. The shape of the chain's links must match the windlass' gypsy, so take at least a foot of chain when shopping for a windlass.

It's good to have an anchor platform with a roller for the chain to run over because chain can ruin chocks that are designed for rope. When using a chain rode at anchor, use chain hooks and rope snubbers to secure the chain to a fitting other than the windlass, which could be damaged by shock loads.

Attach a buoyed trip line to the crown of the anchor when the flukes could become wedged in or under objects on the bottom. CQR and Bruce anchors have an eye for this purpose. If the flukes become wedged under an obstruction, you can haul on the trip line to back the anchor out.

Trip lines should be a size or two smaller than the rode and at least 10 percent longer than the expected water depth. (Be sure to consider tides and strong currents.) Trip line buoys should be a conspicuous color, reflective and large enough to withstand strong currents.

For quick deployment, stow your ground tackle in an accessible place. If your boat doesn't have an anchor platform or a handy foredeck locker, keep your anchors and rodes rigged and stowed so they can be deployed quickly. Stowing the rode in a bag closed with elastic bands will allow it to feed without snarling or tangling.

You'll need plenty of chafing gear when anchoring or mooring your boat for long periods and when preparing it for heavy weather. Fitted to line rodes and dock lines where they pass through chocks, chafing gear prevents line from abrading and failing. You can make chafing gear with several feet of clear vinyl tubing large enough to slip over your line. Slit the ends several times so that you can secure the line to the tubing at each end. Canvas, leather and many other materials can also be used. If you can't fit chafing gear, adjust the line slightly at frequent intervals so the chock bears on a different part of the line.

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At Ease at Anchor

Part 4: Bottom Types and Selecting an Anchorage

In this issue, I examine the kinds of bottoms boaters might encounter and discuss how to select an anchorage.

Bottom Characteristics

Most nautical charts provide bottom descriptions so boaters can determine what type of anchor to use. Burying anchors work well in mud and sand, but for hard clay bottoms swept clean by swift tidal currents, I recommend using a yachtsman or grapnel anchor. These anchors are also suitable for rocky bottoms. Although no anchor will hold on smooth rock, you can use a yachtsman or grapnel to snag a fissure or crevice. If you must anchor on such a bottom, also use a buoyed trip line.

Danforth, plow and Bruce anchors do a good job on bottoms lined with small shells or gravel. If your anchor won't grab where it should, haul it up to check for fouling from shells, cans, rope, cables or other litter.

Heavy grass can also prevent your anchor from setting properly. In a tiny harbor on the western side of Eleuthera in the Bahamas, my wife, Joyce Sanford, P, and I tried to anchor in grass so thick that our 35-pound CQR anchor with chain rode couldn't reach the bottom. Each time it failed to set, I pulled it up and found it encased in a huge ball of grass. We didn't have a heavy yachtsman anchor, which probably would have penetrated the grass, so we had to take a mooring.

A bottom with a deep layer of flocculation, or mud the consistency of chocolate pudding, presents another anchoring challenge. An anchor will float on the soft mud, which creates a false bottom.

Because the Bahamas' flaky sand can become hard-packed, we spent many nights there with the points of our 35-pound CQRs buried only 3 or 4 inches in the hard bottom.

When anchoring on a bottom that slopes steeply away from land, you need sufficient anchor rode. Set one anchor from the bow in deep water, and then tie a line from the bow to a stationary object ashore or set an anchor on the beach or in shallow near-shore water. Adjust the rodes to place the vessel in the desired spot and, lastly, use a sentinel on the shoreward line or anchor rode to keep it from fouling underwater parts of the boat when it swings.

Sentinels, sometimes called kellets, are weights you can attach to the rode to keep it from being fouled on the keel or prop and rudder. If you use line rodes, you should use a sentinel on each one. We connect a 10-pound lead sentinel to each rode with large stainless snap shackles. We attach a 25-foot length of quarter-inch nylon, which acts as a preventer, to the sentinel. Once you have set the anchor, attach the sentinel to the rode and pay out the preventer to let the sentinel slide down the anchor line a few feet. You may need to pay out a little more rode to account for the sag created by the sentinel. When weighing anchor, retrieve the sentinel before the rode.

Selecting an Anchorage

The difference between a comfortable night on the hook and one filled with apprehension or terror may depend on your ability to select the right anchorage. We once anchored with several other sailboats off the northwest shore of Conception Island, an uninhabited island in the Bahamas, near a beautiful beach in 30 feet of clear water with excellent holding ground. After a snorkel and a big meal, we settled down to read. To conserve battery power, we didn't turn on the VHF radio.

When Joyce went topside a while later, she called to me in alarm because all the other boats were leaving the anchorage. I quickly turned on the radio and learned that a fast-moving cold front was forecast to hit that night. I knew the northwest winds behind the front would turn our exposed anchorage into a dangerous lee shore, so we weighed anchor and headed for the east anchorage with the rest of the fleet. It was almost dark when we finally anchored as far north in the anchorage as possible. We were comfortable, but the boaters who anchored farther south spent the night being rolled by waves.

If we hadn't known how to select an anchorage that would shield us from the effects of the cold front, we would have been caught on a lee shore in a strong blow and would have had to sail into the teeth of the gale or been blown ashore.

If we hadn't known how to select an anchorage that would shield us from the effects of the cold front, we would have been caught on a lee shore in a strong blow and would have had to sail into the teeth of the gale or been blown ashore.

Next month, I'll continue discussing anchorage selection and provide anchoring tips that may help put you at ease at anchor.

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At Ease at Anchor

Part 5: Selecting Anchorages and Anchoring Techniques

Selecting Anchorages

When selecting an anchorage, the most important rule is to avoid anchoring off a lee shore, where wind and waves can push your boat toward shore. If you anchor in the lee—on the sheltered downwind side—with the wind blowing from the land, the wind will move your boat into deeper water if you drag anchor. Although your boat will generally be protected from wave action in the lee, waves bending around islands and headlands can occasionally cause your boat to roll uncomfortably.

You should also look for an anchorage with excellent holding ground. There should be no underwater hazards to foul your anchor. The water should be deep enough to make the tidal range immaterial, but shallow enough not to require excessive rode. There should be little or no current and plenty of swinging room.

Anchoring Techniques

One sign of competent seamanship is the ability to anchor without disturbing other boaters in the anchorage or making a spectacle of yourself.

In Annapolis (Md.) Harbor, my wife, Joyce Sanford, P, and I observed two poor anchoring practices.

In the first instance, we were on the upwind side of the crowded anchorage in gusting winds. A sailboat captain who had motored just upwind of us stood on his bow beside a heap of nylon line from which an anchor protruded. Fearing that he wanted to anchor just to weather of us, I went to the bow and asked him not to anchor there. He muttered something and moved to the middle of the anchorage. When he found his spot, he kicked the line and anchor overboard, and went aft. The anchor did not set, and within 10 minutes his rudder became fouled on another boat's anchor rode. A diver had to free the boats.

A while later, Joyce noticed that a chartered sailboat anchored a few yards to starboard was drifting stern first. I jumped into our dinghy and boarded the untended vessel. The last few feet of rode were feeding out of the foredeck locker as the boat moved astern. The passengers had dinghied ashore and left the bitter end of the rode uncleated.

During the years we were preparing to live aboard, Joyce and I devised a system of hand signals to help us coordinate anchoring. Joyce manned the helm while I handled the ground tackle. After dark, we used the spreader lights so she could see me on the bow.

While we were living aboard, we quickly learned to reconnoiter an anchorage before choosing a spot. As we motored through an anchorage, we checked depths, observed how other boats were anchored, estimated the effect of current and wind, picked a spot that gave our neighbors and us plenty of room, and decided how many anchors to use and how to arrange them. Unless there was plenty of room, we deployed the same number of anchors in the same pattern as the other boats to avoid problems caused by changes in wind or current. While we motored slowly into the wind or current—whichever affected the boat the most—I calculated the length of rode I needed and faked it. (Faking is arranging the rode on deck so that it feeds without tangling. A randomly arranged pile of rode with the overboard end on top always worked well for us.)

When we reached our spot, Joyce stopped the boat and I lowered the anchor, making sure the chain didn't fall on top of it. If the wind or current didn't move the boat, Joyce applied reverse power while I paid out the rode. After the anchor caught, I cleated the rode and Joyce applied full reverse power. If the anchor didn't move, we were satisfied.

Next month, I'll talk about scope and setting multiple anchors.

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At Ease at Anchor

Part 6: Scope, Setting Multiple Anchors and Deploying an Anchor

Scope

Contrary to popular belief, scope is not the length of your rode; it's the ratio of the water's depth to the rode's length. The depth is measured from the point where the rode leaves the boat to the bottom, taking tidal range into consideration.

A normal scope for a line rode is 7:1, which means the rode should be 7 times longer than the depth. A 5:1 scope is usually sufficient during the day in settled conditions with good holding ground, but you shouldn't leave the boat unattended with such a short scope. In stormy conditions, you may need a scope of 10:1 or more. When using a chain rode in normal conditions, you can reduce scope to 3:1 or 5:1 because the chain's weight keeps the pull on the anchor horizontal or nearly so.

Using Multiple Anchors

You may want to use a Bahamian moor when your vessel must remain in the same location, such as in a narrow channel. To do this, set two anchors from the bow and locate the boat midway between them.

First, set the weather (or up-current) anchor and pay out rode so the wind or current can carry the boat to the second anchoring spot. As you feed out the second anchor's rode, take in enough of the first rode to center the boat between them. Then set the second anchor. The boat will turn with the wind or current while the bow remains stationary. However, given enough time, a turning boat can twist the rodes together, forcing you to untwist them before weighing the anchors.

When you expect the current or wind to maintain direction, setting two anchors in a "V" configuration will provide extra security. Set the anchors so the rodes lead from the boat at a 30- to 45-degree angle. If the boat tacks to the wind or current, adjust the rodes until it stops.

When the wind or current is variable, you can set three anchors from the bow 120 degrees apart. With this technique, the boat remains in one place but turns with the wind or current, and at least one anchor should always hold.

Some boaters use tandem anchors when anchoring in deep water. To anchor in tandem, set the first anchor and pay out the entire rode. Then attach the bitter end to the second anchor's crown, set the anchor and pay out its rode. Even if the second anchor pulls free, it acts like a sentinel to help keep the first anchor set.

It's a good idea to practice different anchoring techniques and weighing different kinds of anchors. My wife, Joyce Sanford, P, and I were anchored at Man-O-War Cay in the Bahamas when a chartered 41-foot sailboat entered the tiny harbor. After anchoring a short distance to leeward, the captain motored over in his dinghy and asked me if I thought he was anchored well enough.

At his invitation, I boarded the sailboat, picked up the forward anchor rode and pulled it aboard with no resistance. After I helped him set his anchors correctly, he told me he had never anchored before. If he hadn't asked for help, a slight wind might have put his boat ashore or endangered other vessels.

Deploying an Anchor

To deploy an anchor, first prepare the ground tackle. Free the anchor from any permanent restraint, and if using line rode, fake the calculated length on deck. When your boat is in position, lower the anchor to the bottom. When the anchor touches bottom, belay the rode. As the current, wind or reverse power moves the boat away from the anchor, slowly pay out the rode so the chain doesn't fall on the anchor, fouling it and causing it not to set.

Once the rode is overboard, check the tension. If the anchor has not set, you will feel intermittent jerks on the rode as the anchor drags across the bottom. When the anchor sets, apply enough power to bring the rode taut.

Next month, I'll discuss using a dinghy to set the anchor, dragging anchor and weighing anchor.

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At Ease at Anchor

Part 7: Setting, Dragging and Weighing Anchor

Setting Anchor

A little reverse power might be all you need to set an anchor in sand and mud. However, you may have to dive to set the anchor in some bottoms, as I often had to do in the Bahamas. Once both anchors were deployed in a Bahamian moor, I would jump overboard with my mask, snorkel and fins. Next, I'd float over the forward anchor and signal my wife, Joyce Sanford, P, to apply reverse power. When the rode began moving along the bottom, I'd dive and bury the anchor, letting the strain set it. If full reverse power wouldn't move it, I knew it was secure. We'd set the aft anchor the same way, using forward instead of reverse power.

You can also set an anchor using a dinghy. To anchor a small boat in shallow water using a short rode, place the anchor and rode in the dinghy. Then drop the anchor overboard at the selected spot and pay out the rode as you dinghy back to the boat. When anchoring larger boats in deeper water using more rode, prepare the ground tackle on deck, adding extra rode equal to the water's depth. Put the anchor into the dinghy, then fake the rode in, chain first. As you move away from the boat, pay out until only the anchor and chain remain in the dinghy. Then lower the anchor so the chain doesn't fall on top of it. When you're back on the boat, haul in the rode to set the anchor.

Dragging Anchor

The best way to prevent dragging is to anchor securely in the first place. However, if you do drag anchor, you'll need to recognize and correct it quickly. At times, dragging is easy to recognize: The boat will turn broadside to the wind and start to roll.

However, when dragging isn't obvious, you can detect it with a hand-bearing compass. After you anchor, take bearings on at least three easily identifiable landmarks close to 90 degrees apart. Choose structures such as water towers or radio towers that will be lit at night. Sketch the area, identifying the landmarks and compass bearings. If you suspect dragging, take bearings on the landmarks and compare them with what you recorded. If they remain constant, you're probably not dragging.

You can also detect dragging by dropping a second anchor straight over the bow with enough rode to account for tacking. Fake additional rode on deck. If the second anchor pulls rode overboard, you're dragging. If you have faked enough line on the foredeck, the second anchor may set and hold the boat.

Lastly, you can program a depth sounder or fish finder to sound an alarm if the water's depth moves outside a selected range. When selecting a range, consider the tide and wave height. In addition, most Global Positioning System receivers can be set to sound an alarm if the boat moves beyond a specified distance. But electronics and their batteries can fail, so don't rely solely on electronic monitoring to detect dragging.

If you do drag, let out more rode if there's room. If that doesn't work, weigh anchor and try again.

Weighing Anchor

When using multiple anchors, retrieve the anchor with the least strain on it first. Once it's stowed aboard, you can power up the others, retrieving rode as you go.

Deeply buried anchors can be difficult to retrieve. If the anchor does not break out easily, cleat the rode and power slowly ahead until the anchor is free. You can also try powering around the anchor in a circle. If wave action is significant, snub the rode when the bow is in the trough and let the next wave lift the anchor.

Stop the boat when pulling the anchor aboard to keep it from banging the hull or fouling the propeller or rudder. If the anchor is buoyed, take the buoy and trip line aboard immediately after breaking the anchor so the line doesn't stream aft and foul the prop.

To retrieve a fouled anchor, first retrieve the buoy and haul on the trip line to back the anchor out. If the anchor doesn't come free, you may have to dive for it.

An anchor float can also help you retrieve a fouled anchor. Attach the float to the rode using a ring, then power the boat around the anchor in a circle. The water's force submerges the float, which travels down the rode and helps free the anchor.

Next month, I'll share some tips that helped Joyce and me master the art of anchoring.

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At ease at anchor

Part 8: Anchoring tips and tricks

In this final installment of *At ease at anchor,* I'd like to share some anchoring and water safety tips that I've found helpful.

Wear gloves and have the right tools available when handling ground tackle. You'll need gloves to stop a running nylon line without hurting your hands. When working on ground tackle, carry a sharp knife with a marlinespike. It's also a good idea to have a shackle key (a slotted tool that fits over the flat end of a shackle pin). In a pinch, you can use small plastic wire ties to immobilize shackle pins. Don't forget to check your shackles for rust.

Make a laid nylon snubber to give chain rode elasticity and insulate your boat from chain noise. Like a shock absorber, a snubber helps ease the strain on deck gear when you're using chain rode. It can also help eliminate the noisy scrapes and rattles that reverberate throughout the boat.

To make a snubber, set your anchor, pay out the chain rode and retrieve about 10 feet of chain. Using a rolling hitch, tie one end of the snubber to the chain just outboard of where it enters the boat. Feed out some line, and cleat the snubber. Now let out enough chain to allow the snubber to take the strain. For long-term use, put chafing gear on the snubber where it runs through the chock.

Clean your anchor, chain and rode before bringing them aboard. Keep a bucket handy for pouring seawater over the chain and anchor before hauling them aboard. Even better, install a pressurized raw water wash-down fitting at the bow and attach a short piece of hose. Use a long-handled brush with stiff bristles to dislodge stubborn clumps of mud or clay.

Mark your rodes at intervals to help you accurately measure the required length. You can use plastic markers to mark your rode, but their markings are difficult to read at night.

To solve this problem, use small stuff to whip the nylon line with a different pattern at 25-foot intervals. Then, paint the whipping white. At night, you can feel the different whipping patterns, and you can see the white paint in low light.

You can also paint one link of your chain rode white at 20 feet, two links at 40 feet, three at 60 and so on.

You can also use 6-inch lengths of nylon tape to mark rope and chain rodes. Tying a pattern of knots in the tape will help you identify lengths at night.

Periodically swap the ends of your rodes to extend their life. Lines fray and chain loses its galvanized coating, so you'll want to swap the ends of your rodes often if they're heavily used. Don't forget to change the length markings.

Rinse your rope, chain and anchors with freshwater whenever possible. Freshwater helps prevent rust on your chain and anchors. Also, a salt-free line dries quicker and more thoroughly.

Periodically inspect your ground tackle. Remove your ground tackle from the boat and lay it out where you can inspect it from end to end. Make sure the shackles and thimbles are in good condition. Make sure shackle pins are securely immobilized and their threads well-greased.

Scrub down the empty storage locker with an industrial-strength cleaner to eliminate noxious odors, and make sure the drains aren't clogged.

When feeding line or chain rode into a storage locker, spread it out to ensure that it feeds freely. When more than half your rode is out of the locker, spreading it out will help prevent it from forming a narrow pile that can collapse and tangle under way.

To avoid rolling, turn your boat into the waves when the wind holds you parallel to them. But don't do so when a current is running because the strain may pull your anchor from the bottom.

To face the boat into the waves, make a bridle using a dock line. Use a rolling hitch to tie the dock line to your anchor rode just outboard of the chock. Lead the dock line aft down the side of the boat away from the waves and outside of all rails and stanchions. Pass it through a stern chock and then to a cleat. Slowly pay out rode, letting the bow fall off until it points into the waves. Now you will pitch instead of roll and be the envy of nearby boaters.

When weighing anchor in this configuration, first haul in the rode until the dock line is slack. Uncleat, untie and remove the dock line, and then weigh anchor as usual.

Use a riding sail to make your anchorage more comfortable. Flown mostly from sailing vessels, riding sails help prevent anchored boats from tacking.

Although it takes practice, developing good anchoring skills will allow you to relax on board and off.

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In this final installment of At ease at anchor, *P/Lt/C Samuel S. Sanford, JN, reveals his secrets to anchoring success.*