The Happy Hooker

A guide to confident anchoring

from

Salty John

Sleeping serenely whilst at anchor is a confidence trick. If those aboard have confidence in their ground tackle and the manner in which it has been deployed they will sleep soundly and untroubled. Whether or not their pacific slumber is justified is irrelevant - only their perception matters. Guests on a first cruise will often enjoy a full nights rest while the skipper lies awake contemplating the distressing consequences of dragging his anchor - he recognises the vagaries of anchoring, his gently snoring guests do not.

If the anchorage is shared with other boats the consequences of dragging become even more far reaching - other people will become ensnared in the debacle; there will be shouting and accusations and damage to other boats. And a shared anchorage provides the opportunity for the uncertain anchorist to worry about other boats dragging, because if you don't trust your own anchoring arrangements, how can you trust anyone else's?

Fear not. With experience comes confidence and with confidence comes peace of mind and gentle sleep. Each successful anchoring experience reinforces the belief that the boat *can* be securely attached to the seabed - all it takes is the right tackle and the right techniques:

The Tackle

Anchors

The first requirement is for at least two anchors of proven design and adequate weight for the boat and conditions. In Salinas, Puerto Rico, we watched a boat drop a pair of intriguing scimitar-shaped hooks which may well have gripped the bottom like limpets but they had me feeling very nervous and glad to see their owner on his way next morning.

CQR

Bruce

Danforth

My choice is the genuine CQR, although I'd sleep soundly to a Bruce and, in mud, a big Danforth. I've heard good things about the Delta but have never tried one. There are many other anchor types which may or may not perform well, but only personal experience can develop the confidence that allows you to leave your boat in their hands.

The Delta

For a moderate to heavy displacement boat a pound per foot of boat length is about the right weight for a plough anchor and I wouldn't be happy with anything less. I'd love to become convinced that a lightweight, pointy, high-tech creation would do the job and at the same time save my back and keep weight out of the bow, but I've yet to make that leap of faith. This doesn't mean to say that lightweight anchors are inferior, only that the concept hasn't fully convinced me and I haven't had the proof of experience yet. I do know that the Danforth, which can be categorized as a lightweight anchor, performs significantly better with a long length of heavy chain ahead of it than it does on a short length of chain. I believe this is important with all anchors – the more horizontal the pull on the shank, the better the anchor digs in. Thus, you can argue that an anchor doesn't have to be heavy to be effective, as long as the chain to which it is attached is able to take on the role of keeping the shank down while the anchor digs in.

A comprehensive anchor comparison test was conducted by Practical Boat Owner magazine in conjunction with BoatUS. The tests were conducted in a sand bottom. The results are interesting. See here:
http://www.practical-sailor.com/boatus/anchors/4rhod4598/99anchor1.htm

Anchor rode (Often called the anchor cable)

I recommend that at least the primary anchor be deployed on an all-chain rode with a manual or electric windlass to handle it. When I advocate an all-chain rode I am referring to the normally deployed section of rode. It makes no sense to keep 300 feet of heavy and expensive chain in your bow locker if no more than half of it ever sees the light of day. In fact, it can be a hazard - a friend who normally anchors in depths of 20-30 feet found himself seeking shelter from a bad blow in a deep bay. When he came to drop the hitherto unused and undisturbed section of his chain he found it had congealed into a ball of rust and he had to crawl into the locker with a hammer to bash it free. 150 feet of chain will provide adequate scope in anchorage's up to thirty feet deep. Additional lengths of chain can be carried in the bilge, or other low-down and amidships location, for contingency use.

Many boats use as their primary system a rope/chain combination in which the chain leader is only a boat length, or so, long. This introduces the spectre of a parting rope-to-chain splice and chafe or laceration on rocks, coral, or bow-roller. A windlass is still necessary to handle the chain leader but there is the complication of switching from chain to rope gypsy during recovery. An all-chain rode never leaves the windlass, giving great control. Also, chain self-stows, avoiding a snake's honeymoon of soggy nylon on the fore-deck which must then be coaxed down the naval pipe. And a final point in favour of chain is the reduced scope required and the attendant smaller swinging circle. With *Adriana's* all-chain primary rode we use a scope of 5:1 or 80 feet, whichever is longer. With rope we'd need 8:1 to keep the pull horizontal and the shank down; that's 150 feet in a typical Caribbean anchorage. When the wind dies at night boats anchored in this way tend to go walk-about, drifting aimlessly and, perhaps, nudging a neighbour. When the wind pipes up, they career around like demented bungee-jumpers.

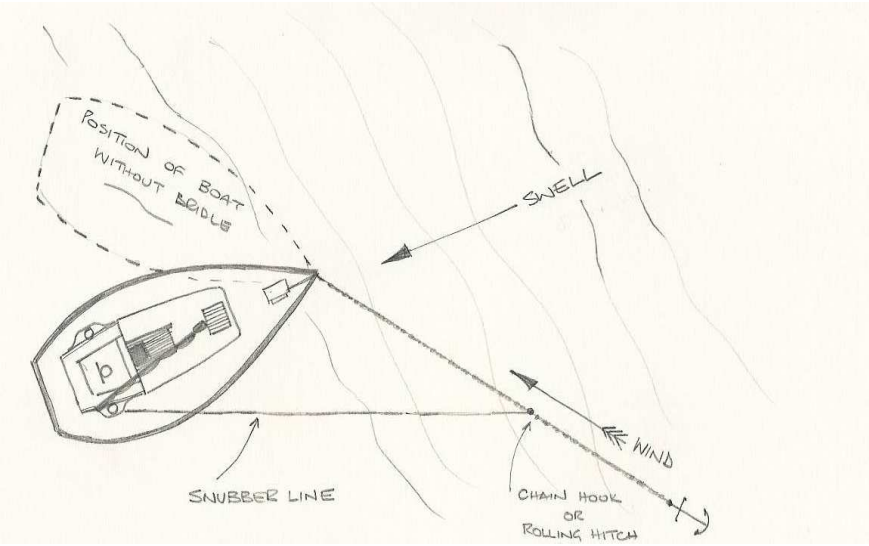
What, then, are the perceived advantages of rope/chain combinations? Well, nylon rope is substantially lighter than chain and this keeps weight out of the bow, and makes manual anchor recovery less back-breaking. With chain it is important to arrange stowage as low and as far aft as possible, perhaps leading the chain there through plastic drain pipe. Selecting the right chain for the job is important; high test chain, G4, is lighter and more flexible than proof coil for a given breaking strength. And, as I have already said, only stow enough chain in the locker to handle normal anchorage depths. Ease of manual recovery is a moot point because I consider that a boat without a windlass is not properly equipped for cruising. If you have a windless you can handle

chain; if you don't you will find manhandling your anchor becomes a chore on an extended cruise and you will, sooner or later, be checking your favourite marine catalogue for a good deal on a windlass, or the yellow-pages for a chiropractor.

Nylon rope is cheaper than chain. This is an important and undeniable advantage of nylon over chain. The second anchor on *Adriana* is carried on 30 feet of chain and 300 feet of nylon. This is a compromise born of the need to minimise weight in the anchor locker and maximise weight in my wallet.

Nylon rode is quieter than chain; it doesn't crash on the bow-roller in surging conditions. To gain this advantage for chain a chain-hook and snubber is used. The chain-hook slips over a link of chain and the nylon line attached to it, the snubber, takes the anchor load to a cleat or sampson post, absorbing the shocks and leaving the chain hanging in a loose bight. Should the snubber chafe through the chain retakes the load. (Eventually we dispensed with the clunky chain hook in favour of attaching the snubber line directly to the chain with a rolling hitch. We found this more positive than the chain hook and more deck and toe friendly.)

A snubber is also useful in anchorages where the swell comes from a different direction to the wind, curving around a headland, perhaps. The boat, lying to the wind, may take the swell on the beam and roll uncomfortably. In this case, lead the snubber line all the way aft to a cleat or sheet-winch on the side away from the swell. Then, as you let out more anchor chain, the boat will turn her head toward the swell as the anchor lead-point moves aft. This bridle arrangement can mean a good night's sleep in an otherwise impossibly rolly anchorage.



Using a snubber line to bring the boat's head into the swell

Windlass and accessories.

The windlass can be manual or electric; if it's the latter be sure the engine is running when hoisting anchor as the current draw is substantial. *Adriana* has a beautiful bronze electric windlass made by Ideal Windlass in the U.S.A. It is technically a capstan, having the rope and chain gypsies rotating on a vertical drive shaft, and it provides a pull of about 500lbs at the press of the foot switch. Manual operation is available should I wish to conserve power or punish the crew. The unit can be serviced in ten minutes armed with a screwdriver and a pot of winch grease. Unfortunately it is a particularly heavy device so that, combined with the weight of the chain it is there to control, *Adriana* is inclined to hobby-horse her way forward. On smaller boats I would consider a lighter manual unit.

Be sure that the windlass is located in such a way that the chain feeds directly into the locker as it is stripped off the gypsy, and that there is sufficient available depth in the locker to accommodate the incoming chain without requiring manual flaking. With an all-chain rode secure the bitter end with a nylon line long enough to allow the chain end to be brought onto deck so you can untie or cut it without having to crawl into the locker.

A naval-pipe with a cover, a locking pawl for the chain, and a sturdy bow-roller complete the hardware list.

A well sorted anchoring system on a small boat

Having the right gear is half the battle for tranquillity at anchor. The other half is knowing how to use it:

The Techniques

Anchor defensively and considerately. Keep away from immovable objects such as rocks, reefs and docks into which you could swing as the current reverses or the wind shifts, and keep well clear of other boats, no matter how attractive the crew taking nude deck showers might seem.

In the Virgin Islands it always amazed us that, no matter how close we anchored to shore, someone would always try to squeeze between *Adriana* and the beach. Even when we were the only boat in the bay we would have people come in and anchor with their stern just a short step from our pulpit. These sailors had not learned to anticipate where their boat would end up once they had fallen back and stretched out their rode.

Anchoring is actually quite simple; many people who are neither brain surgeons nor rocket-scientists become quite good at it. We lay at anchor for 300 days of a year-long Caribbean cruise, never in one spot for more than five days, and we dragged only once. That was when we put the CQR down in grass and a squall blew in. Fortunately we didn't hit anything, but one should be aware that the consequences of dragging anchor are almost always bad. If you have been secure and you start to drag it is because something has changed and probably not for the better. An increase in wind strength, a wind shift or a change in current direction are the most common culprits. You would be most fortunate to simply drift out of the anchorage into open water without hitting a boat on the way, although we once watched a 50' charter boat thread it's way out of crowded Leinster Bay in the USVI as if some ghostly hand were at the wheel and she was well on her way to Jost Van Dyke before the sleeping crew realised what was happening.

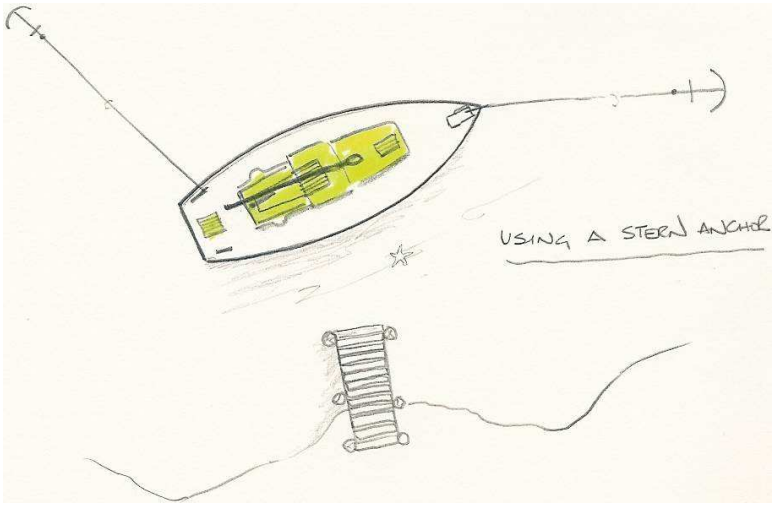
The best way to anchor is as follows: Decide where you want the boat to be. Estimate where, to achieve this, the anchor must be. Allow for substantial error in judgement. Bring the boat to a stop facing up-tide or upwind, as appropriate, at the spot where you want the anchor to be. Lower the anchor and pay out rode as you drift or motor downwind from this spot. Do not at this time put strain on the rode or you will simply drag the anchor downwind of the target spot and you will eventually fetch up with your stern a short step from my pulpit. When you have laid out the required scope, lock the windlass clutch and snub the anchor. It should now grip and stop your downwind progress. Apply some engine power, about half revs should do, to set the anchor and stretch out the rode. The anchor will continue to bury over time as the current action and the boats motion worry away at it. Applying full power at this stage will just drag your anchor along the bottom, unless you have a particularly puny power plant.

Once the boat has settled you will want to check that you are holding by reference to fixed objects ashore - this is probably best done before settling down to those sun-downers.

One anchor or two?

In most conditions a single anchor of adequate size, deployed on a length of chain 5 to 6 times the distance from bowroller to seabed, will be perfectly secure. A CQR, with its pivoting shank, will roll over and reset itself as the tide turns or the wind shifts. In some conditions, however, you may feel more confident having two anchors down. There are three configurations available when using two anchors, each designed for specific circumstances:

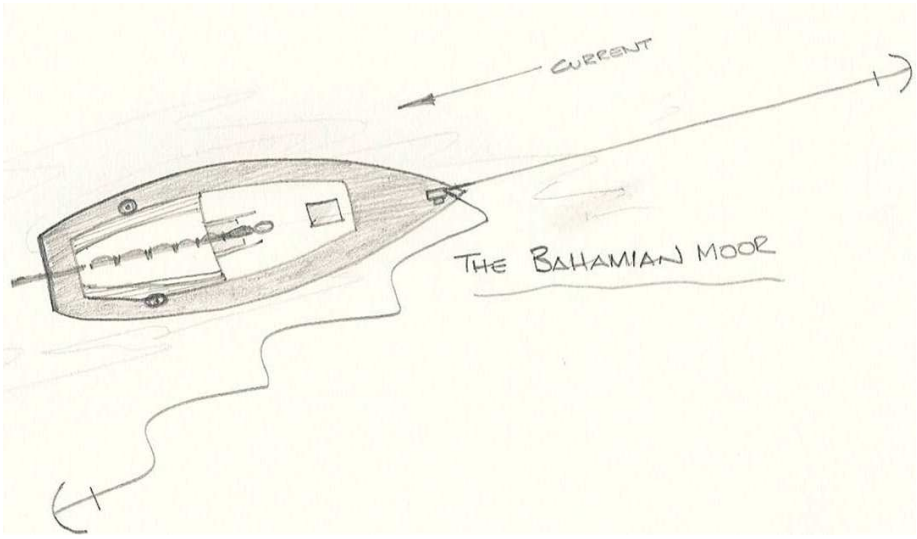
1. *One from the bow, one from the stern*. A stern anchor is used to limit the boats swing in a very confined anchorage. The advantage of holding the boat almost stationary where there is danger of swinging onto rocks or into shallow water is obvious, but if other boats are sharing the cove it is wise to check that they are using the same technique or that their swinging circles take them well clear of you.



2. *The Bahamian Moor*. The second anchor is led from the bow, but in the opposite direction to the primary anchor. This technique is used where there are strong reversing currents, as in many of the Bahamian anchorage's including Nassau Harbour. The boat lies first to one anchor and then, as the current reverses, to the other. This avoids having the boat swing in a huge arc from one side of a single anchor to the other and enjoys the inherent safety of having two anchors down.

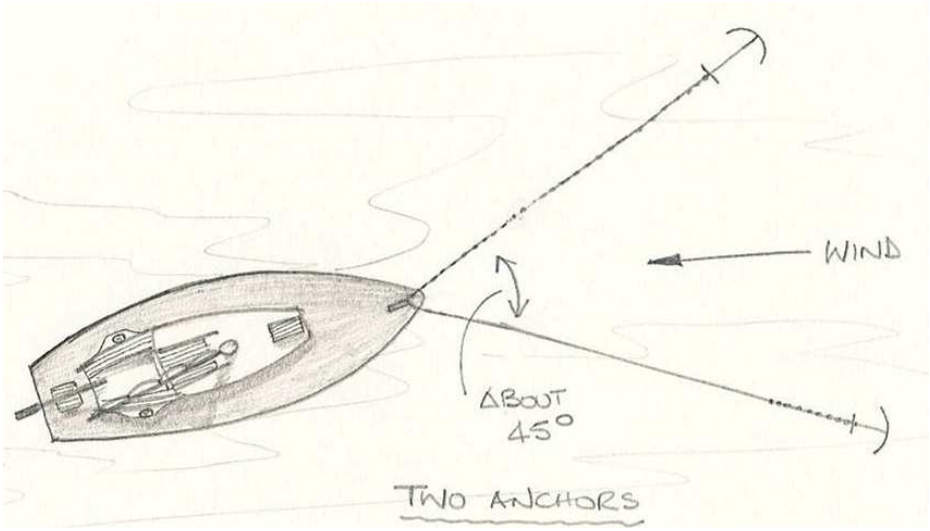
I always set the second anchor from the dinghy, piling anchor and sufficient rode onto the stern seat and paying it out as I row away from the boat. It is possible to avoid using the dinghy by falling back on the primary anchor the appropriate distance, dropping the second hook, and then motoring back to the mid-way point. This is less complicated if both anchors have identical rodes; if your primary anchor is on chain and your second anchor is on a chain/rope combination you must drop back far enough to allow for the greater scope necessary with the rope rode.

The Bahamian moor is used in very specific circumstances, where strong reversing currents occur, and the boat is actually held by only one anchor at a time. The fact that another anchor is down is a comfort if the worst should happen, but do remember that for half the time you will be lying to your second anchor which must be equal to the task.



3. *Lying to two anchors simultaneously*. Both anchors are deployed from the bow, about 45 degrees apart, and ideally they share the load. This technique is used in strong winds, or where the consequences of dragging are particularly dire, or where the skipper directly downwind of you is standing on his fore-deck glaring. Having two anchors set, both on proper scope, is a wonderfully secure feeling.

I usually lay the second anchor from the dinghy. Carol stands in *Adriana's* bow pointing me in the right direction because it is very difficult to judge the correct angle from sea level. It is possible to set the second anchor the lazy way: Simply motor to the spot where the second anchor should lie, dragging the primary rode with you, drop the hook and fall back onto both rodes. If you can live with yourself after damaging the seabed like that, go ahead, it's a very effective method and in common use.



Although lying to two anchors is a very secure feeling there are occasions when, perversely, you would rather not have this complication, in case you have to cut and run: A nasty night in an exposed Bahamas anchorage with the prospect of a significant wind shift had me torn between the security of two anchors and the mobility of just our primary hook on the trusty windlass. What I did was to drop the second anchor onto the sea bed under the bow but kept the rode coiled on deck ready to run out and give us a second chance if the primary dragged. Minimum fuss would have been necessary to recover the gear and clear out had the wind gone round, putting us on a dangerous lee-shore.

Are we dragging?

Until fully confident of their anchoring technique a crew will worry that the anchor may drag with no-one aboard being aware of it. Most GPS units have an anchor watch facility but I find that if they are set fine enough to be of real use they buzz at every wind shift. To avoid spurious activation the alarm should be set at 600 feet or more and therefore its value is limited to large, uncluttered anchorages. Heath-Robinson arrangements of frying pans, string and plumb-bobs described in nautical how-to books will let you know when you have got your tidal range wrong or are about to hit the beach, but you'll probably be awake anyway worrying that the clatter of pots and pans won't wake you from a deep slumber.

A clever mechanical alarm system is described here: www.yandina.com/anchAlrm.htm. This device relies on the fact that a boat never drags towards its anchor, which in my experience is true. A plumb bob lowered to the sea bed is connected to a magnetic switch that will only activate if the boat moves backwards from the plumb bob and not forwards or sideways. The switch activates a horn or flashing light.

Eventually, however, experience tells you that when a boat drags at anchor she turns beam-on, or almost so, to the wind, which generates such fundamentally different noises in the rigging and top hamper, and imparts such a distinctly different motion to the boat that you will be jolted awake just as assuredly as if a foghorn had gone off in your ear.

If you are in a crowded anchorage or to windward of danger and you anticipate deteriorating weather conditions you should arrange an anchor watch. Those that are off-watch will get a few hours of good sleep, which is better than having the whole crew sleeping with one eye open.

With the right tackle aboard and a good grasp of anchoring theory the process of building confidence can begin. Experience will test the theory, changes may be made to tackle or method but, eventually, the sailor will develop an anchoring system he trusts: The confidence trick has been mastered, the happy hooker is born!

Adriana at anchor in St Thomas, USVI

(Text, images and sketches by John Schofield)
(Foredeck image by kind permission of Nigel Luther)