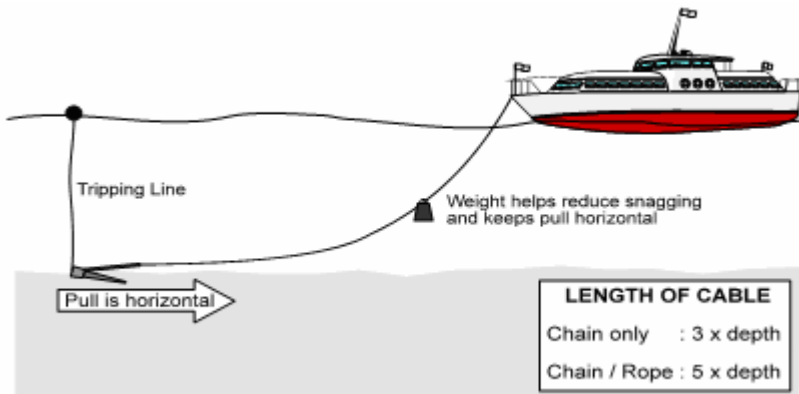


## How to anchor a boat



Anchoring your boat securely is one of the most basic skills in boat handling. Learn to set an anchor right, with control and confidence, and we will all sleep easier. Anchoring poorly endangers not only your boat, but also the other boats anchored nearby. So, even if your anchoring technique is good, it is wise to review these tips.

If your anchor has not set securely or you have anchored on foul ground, there is a high chance of the anchor dragging. When this happens an "Angel" anchor weight will give the anchor another chance to dig in as it keeps the chain on the seabed.

Reports from boats that have faced whole gale to cyclone winds at anchor, say that it is not the winds that break anchor gear and upset anchors, but the accompanying wave action which causes boats to pitch, surge, heave and yaw. Surge is the worst of these motions as the boat rides over the waves alternately stretching and relaxing the anchor warp like a horizontal yo-yo. Surging of the boat sometimes as much as doubles the loads felt from wind drag alone. The surge factor can be proportioned to the boat displacement and length. Surge is the motion forward and backward in the direction of boat travel, along the longitudinal axis.

The other 5 motions experienced by a boat at anchor are sway, heave, roll, pitch and yaw. The wind tends to create yawing and swaying, the waves tend to create pitching and heaving, while the anchor restraint, depending on its elasticity, is involved with surging.

A boat's primary ground tackle - anchors, chain, warp and shackles, must be of a size considered adequate for the size and weight of your vessel. (Check with the manufacturer's recommendations). To maximize holding power, an anchor needs to have some sturdy galvanized chain between it and the anchor line, no less than 5m. It should be at least the length of the vessel. The warp or chain if all-chain is used, should run free in the anchor locker and the bitter end should be fastened to the vessel. It is a good idea to have the warp or chain marked off in 5m increments to be sure how much is being let out, when anchoring. Coloured tie-wraps are great for this and easier and quick than paint!

Tests have shown that the correct size anchor of any reputable design pulled horizontally is more likely to hold than an oversize anchor pulled upwards.

When nearing an anchorage, shorten up the painter if you are towing a dinghy, so it cannot possibly reach the propeller when backing the vessel.

Make sure crew members know what is expected of them. Remember, it is almost impossible to hear commands from the bow in the cockpit, so a few simple hand signals should be established.

Once in the bay, consider how the boats already there are anchored. Most will be swinging on a single anchor warp. But in heavy weather, some may also be using an additional "angel" anchor weight, some may have two anchors set off the bow, or one off the bow and one set astern. Some may be on permanent moorings. When the wind or current shifts, the vessel with an anchor weight or two bow anchors set, will swing in a shorter radius than boats on a single anchor. Vessels anchored fore and aft won't swing at all. Those on permanent moorings will pivot around their bows, but move very little. In very light air, boats with all chain anchoring systems may not swing as far or as quickly as those riding a mostly nylon warp.

As the newest arrival, you must anchor to keep clear of boats already at anchor. Make sure you allow for any change in wind direction and strength. It is always safer to leave extra space around your boat.

Position your boat with the bow to the wind (or the current, if that is stronger), roughly equidistant from your nearest neighbours in the approximate location you wish to be in when anchored. Make sure you will have ample water beneath you at dead low tide.

In normal conditions, a safe minimum anchor scope ratio is \*5 to 1 (warp) or 3 to 1 (chain) length to depth. (In heavy weather 7 to 1 or more). Depth is the depth of water at high tide, plus the height from water line to the bow roller. Scope is the actual amount of anchor line paid out when the boat is safely anchored. For example, if high water is 6m deep and your bow roller is 1m above the water, you need 35m (i.e. 5 times 6 + 1) of scope to anchor.

[\*Note: there is much debate on this topic some will say 6 for rope or 4 if all chain]

***Remember, putting out too little scope is one of the most common mistakes a skipper makes when anchoring.***

While still hovering above the spot where you intend to lower your anchor, take another look around your boat. Don't set your anchor close alongside or close off the bows of other vessels. If you do, you may well swing into them if there is a wind shift. It is usually safe to set an anchor close astern or off the quarter of another boat. Look also at the direction in which the warps and chains of nearby boats are

pointing. A boat may have a second anchor set off in your direction, which you may foul if your anchor drops on top.

If winds are very light, don't assume that everyone's anchor is positioned straight out before the bow. In calm conditions, anchor warps, especially chains, may be stretched out in the direction the last real breeze blew from. You can always ask the skipper of a nearby boat where his anchor lies.

If all is well, circle back around to your intended final resting spot and then slowly coast forward the approximate distance of your planned scope.

Stop the vessel completely with a short burst of reverse power. When your vessel has lost all way and is at a complete halt, lower the anchor. If you have any way on at all, your anchor chain will drag over the anchor, once the boat drops back and may foul the anchor.

When you let go the anchor, don't let the chain and warp go screaming out to pile on itself. Instead, lower the anchor quickly, paying out the warp or chain hand over hand or with the windlass, until you feel the anchor rest on the seabed. Signal to the helmsperson to put the engine in very slow reverse, so the vessel just begins to make slight stern-way about the time the anchor touches the bottom. If it is windy, leave the engine in neutral and let the boat's windage and motion provide the backing propulsion. As the boat continues to back slowly, also feed out the anchor line (be it warp or all chain) slowly, maintaining a slight tension on it, so that it is laying out straight on the seabed, instead of in a pile.

With the boat still backing slowly and with about half of the scope out, hold the anchor line firmly until you feel the slack is taken up and the anchor is tugging. Feed more anchor line out, but keep tension on so the anchor is being set straight.

Pass the anchor line around the bollard to make it easier to hold. Snub up firmly, just long enough to feel it tugging for a second, then ease off. Repeat this snub and feed pattern several times. On a larger vessel, with an all chain anchor line and heavy ground tackle, you would be using the windlass gypsy for this task, alternatively braking and releasing the drum.

This gentle snubbing/feeding action while backing down the boat is the surest way to make an anchor set. Yet it is a technique very few skippers seem to employ. It gives the anchor an opportunity to right itself, penetrate the bottom surface and gradually dig in.

If the anchor has taken hold, the boat will come to an abrupt halt, firmly setting the anchor.

However as we all know, there are times when you do worry whether the anchor is holding. It can roll out and dislodge in vicious wind gusts and squalls or very strong

wind and when your boat is swinging wildly. These conditions are often unexpected and are cause for concern.

When you need extra security at anchor, almost double the holding power of your anchor with an "Angel" anchor weight. This reduces the risk of dragging - considerably less swing - far more comfort. And ... Peace of mind and the finest guarantee of a good night's sleep.....

If the area you are anchoring in is foul or crowded then attach a buoyed trip line. Attach it to the crown of the anchor so that If the flukes become wedged under an obstruction, you can haul on the trip line to back the anchor out. CQR and Bruce anchors have an eye for this purpose.. Trip lines should be a size or two smaller than the rode<sup>#</sup> 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 colour, reflective and large enough to withstand strong currents. In a crowded anchorage they mark your anchor and so help others avoid fouling it when they anchor.

# rode is the rope, chain, or combination thereof used to connect the anchor to the vessel

"Angel" anchor weight – A very heavy weight, at least as heavy as the anchor, attached to and lowered down the anchor warp on a separate line but remains above the sea bed. This helps keep the chain between the anchor and the warp more horizontal and reduces snagging in heavy weather. Use of an angel does NOT reduce the amount of scope required.

