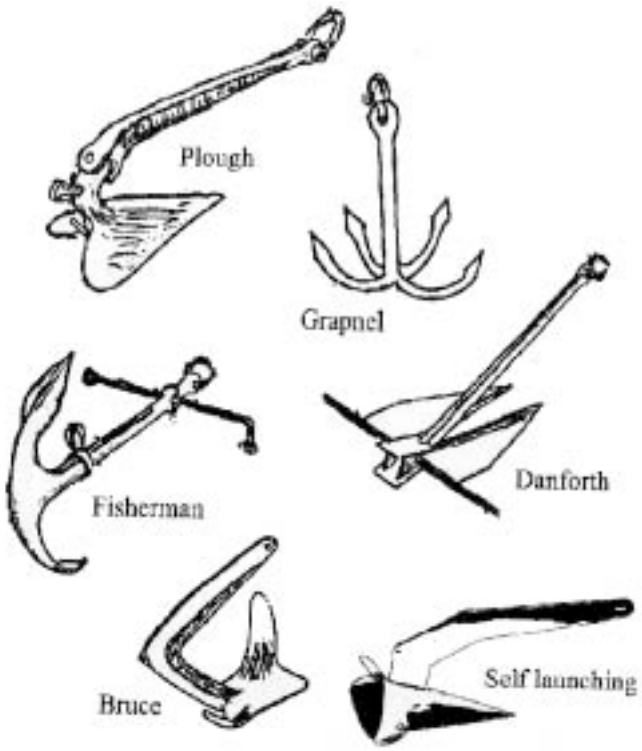
A GUIDE TO ANCHORING



ANCHORING

Anchoring can be easy …

You can motor into a familiar protected anchorage, drop the anchor, go astern paying out enough chain, go astern again to set the anchor, cut the motor, and relax.

Anchoring can be difficult …

However, to be securely anchored at the end of the day is always a great reassurance, and offers a restful night.

Choosing anchorage

1. Information from chart

The protection from wind, swell and surge all depend on fetch. Sandbars, reefs and beds of kelp are dangers entering, but offer protection once inside.

Open anchorages – beware tidal currents. A large shallow anchorage (say 5 meters a mile off the shore) offers little comfort.

Small, snug anchorages are usually crowded near population centers. First in, first served, so don't anchor too close or upwind, and give priority to moorings.

Bottom – depth and contour. Steeply shelving is difficult with one anchor.

Nature of bottom – (a) hard sand, (b) thick weed, (c) thin mud, or (d) gravel. Each may demand a change of anchor. A big sharp Fisherman for (a) and (b) and a heavy CQR or big Danforth for (c) and (d). Rock, stone and coral promise poor handling, requiring a grapnel.

Foul ground with sunken moorings and rubbish near population centers, or large rocks anywhere that rattle the chain all need a tripping line.

Beaches may offer dinghy landing.

Mangroves promise insects.

Large mooring buoys. Beware! May be unlit and position only approximate.

Submarine cables threaten loss of anchor and rode, as well as prosecution!

Land contours. (a) Cliffs may reverse offshore winds. (b) Cols and valleys can produce williwaws.

Well charted lights. (a) Can confuse with commercial lights ashore. (b) But night approach with good navigation aids is easier than in daylight if it is a featureless coast.

Value of chart depends on (a) The scale being adequately large. (b) The area having had a detailed survey. There are many areas in Australia and New Zealand that have not. (c) The chart being a recent publication with up-to-date corrections. (d) the chart being an original official publication. (A first class, professional copy may be acceptable if the more expensive original is unobtainable.)

Charts are expensive but it is unwise to skimp. However, American charts (or foreign charts produced in their own country) may be both cheaper and more useful to small boat owners than some Admiralty charts.

2. Information from pilot

American pilots are not only cheaper, but often more appropriate for yachtsmen than Admiraly pilots. Any pilot needs to be a recent publication.

3. Notices to mariners

The older your chart and/or pilot, the more important the notices become. They may give the only warning of a still uncompleted submerged breakwater. They may also give the only notice of altered lead lights

4. Local knowledge

Warnings of poor holding or unsuspected dangers should always be heeded.

Recommended anchorages need to agree with the chart, pilot or your judgement, and not just on the advice of unknown local residents.

5. Cruising guides

They are usually reliable and should give the GPS position, identifying features and dangers of entrance for all anchorages. They must contain clear diagrams wherever relevant. They should detail depths and nature of bottom, availability of fresh water and nearby features of interest.

6. Tide tables help to decide the scope needed for anchor rodes, and the time of departure if there are bars, narrows or tidal races nearby.

7. Weather forecasts often prompt the decision to seek an anchorage and then are a major consideration when deciding to depart.

Only choose a leeward shore if a weather change is confidently expected. Known prevailing weather patterns should help decide the area and timing of cruising plans.

Anchors and rodes

It is essential to have a variety of both. It us essential to mouse all shackles.

Anchors. Appropriate for displacement and windage of boat and nature of bottom. Use heaviest the boat and crew can handle. Buy the best, not the cheapest.

Genuine CQR stows in bow roller. Great holding power, almost impossible to foul with rode, but choke with weed. Some ploughs are very good, but try before you buy a second-hand one.

Fisherman. (Swarbrick from Western Australia are excellent.) Stowed on deck or lashed outside pulpit (maybe in added stainless arms). Twenty-five kilogram is maximum to man handle. Over this weight use a halyard to the point of balance, maybe with a boom or removable davit.

Go astern as rode is let out to avoid fouling upper fluke when setting.

With a reversing tidal flow a second anchor can help prevent fouling fisherman.

Danforth. Subject to floating (or skating) and easily choked by weed.

Grapnel. Folding versions available. Need tripping line to weigh.

Bruce. May be dislodged by violent yawing. Also can choke with weed. Will hold with shorter scope.

Tunisian spade. Uncommon, expensive, excellent.

Ideal Fisherman – shank from stock to crown = 1.6 times bill tip to bill tip.
Stock as long as shank. Heavy reinforced arms, oval or rectangular, with long axis in line of pull.
Flukes: (a) long, broad and flat = large area.
(b) tapered with sharp bill.
(c) set at 45° to the shank.

Notes

Even a small anchor needs to weigh about 15 kg (35 lbs) to set reliably.
Kedging to a well-set anchor with sheet winches is more effective than the engine.

Rodes (lines or cables of chain or rope).

Chain – top quality, preferably tested, chain. Preferably short links.
Advantages: Less scope, will not chafe, minimizes yawing.
Disadvantages: Heavy pull to weigh anchor (6 mm is maximum by hand).
Heavy weight well forward.
Maybe less strength than realized, weakened by using smaller shackle.
Picks up mud which often has foul smell.
Violent snatching in surge or seaway.
Use nylon spring.

Rope – nylon not polypropylene, with 4 to 6 meters of heavy chain from anchor.
Nylon chafes quickly! Use very smooth chocks plus anti-chafing gear (e.g. plastic tubing), made fast to Samson post.
Separate stowage space in chain locker.
Nylon spring. 6 meters of, say, 30mm (stronger than the chain).
Anti-chafe parcelling *or* metal thimble at each end, each with chain tail.
Shore lines. Nylon stronger, but polypropylene floats, thus easier to tow ashore with dinghy.
Senders or monkeys. Sending weights down chain can be difficult and is of limited effectiveness. Heavier chain and much more scope are preferable.

Scope (length of rode)
7:1 for light anchor + rope.
5:1 for Danforth with chain, and Fisherman, CQR or Bruce with rope.
3:1 for Fisherman, CQR or Bruce with chain.
(NB: 1 = depth reading + transducer depth + freeboard)
Add boat length to get swinging room. Increase ratio if wind increases. Include this in swinging room calculations.

Precautions
Mark rode clearly every 5 or 10 meters (paint, rawhide or 4 mm terylene braid tails).
Bitter end – rope line from chain end to pad eye high in chain locker.
Marker buoy on separate rope line, ready to go if necessary.

Buoyed tripping line over the anchor if indicated. Marked "anchor tripper".
Length preferably twice depth, but keep line shorter than distance from bow to propeller!

Detection of dragging

(a) Rode jerking, skippping and /or grumblling when setting.
(b) After setting, beam onto wind is the first sign. Waves cease slapping bow.
(c) With no visibility, lead line taut and tending forward.
(d) Changing visual transits or bearings.
(e) Altered GPS or radar position.

Solutions – Let out much more scope. If unsuccessful weigh anchor, re-set (in sand if seen), plus more scope.

Anchor watches essential
in heavy weather
in some exposed anchorages
if holding is at all doubtful

Techniques

Final choice of anchor

<u>One anchor</u>

Cruising inspection with depth sounder. Assess bottom visually and with fish finder. Check clearance from other boats and hazards. At least three (preferably five +) boat lengths beyond swinging room.
Maybe move if conditions change in daylight.
Maybe hang on at night if not dragging (with anchorwatches) or go to sea until daylight.

Step-by-step sequence

1. Boat head to wind, or tide. Take way off.
2. Release anchor to touch bottom.
3. Slowly astern easing out rode to full scope.
4. Do not skip anchor over bottom.
5. Rode braked then stopped.
6. Allow a few minutes for anchor to settle.
7. Very slowly increase revs astern, to set.

Nylon spring line – one end to anchor chain (claw or rolling turns) other to Samson post. then ease out anchor chain to allow slack. Anchor chain to Samson post as back up.

<u>Two anchors</u>

Both over bow

Prevents sailing around anchor (with changing currents).
Minimizes swinging circle.
Prevents yawing in strong winds.
Insurance against dragging a single anchor in severe conditions.

Bow + stern (beware of beam wind dragging)

Use with steeply shelving bottom (stern shore line), tiny anchorages and/or williwaws (maybe even two bow and two stern lines ashore). Also use with onshore wind to keep bow into swell.

Possible sequences

Setting. Set bow anchor (step-by-step above). Row out stern anchor in dinghy, plus extra scope.
or
While underway, stern anchor dropped with double scope. Bow anchor lowered. Then slowly astern, taking up slack on stern rode.

Weighing. Winch in stern rode (easing bow rode), weigh stern anchor, weigh bow anchor.
or
Release buoyed stern rode, take up bow anchor, retrieve stern rode over bow and weigh anchor.

Anchoring under sail

Easiest if no tidal stream, and boat handles well under main only. Clear foredeck. Chain free to run. Anchor ready to go. Preliminary run over chosen anchor sight. Final approach, enough speed to respond to helm. Just leeward of site, ease mainsheet to slow down.

Let go anchor. If using starboard fairlead, main-boom out to port, with main luffing. Vice-versa with port fairlead. Danforth will plane out from boat. With other anchors steer to keep chain clear of hull. Anchor on bottom, catches, drags out chain.

Now, mainsheet in firmly. Boat continues run, anchor digs in, stops boat. Leave main sheeted in, wind will sail anchor in deeper. Main eased too far causes problems (luffing up or running off, etc.). Drop main. Not dragging?

Off a leeward shore use same procedure, but to leeward of the chosen sight either steer off the run onto a reach, or luff up across the selected site. Finally, sheet main in firmly as for windward berth.

Weighing under sail

Release snubber. Lying head to wind. Shorten up anchor chain if possible. Hoist main. Ease mainsheet a little. Begins sailing up to anchor.

Each time strain comes on cable, the boat stalls and jerks around onto other tack. Helmsman not needed. Each time strain comes on cable, boat falls off onto other tack, results in the strain going off the cable, slack forms bight. Now haul in this bight. Just before strain comes again, flick on chain pawl, or take turn of rode around samson.

If strain comes at same time as boat rises to a sea, the cable secured inboard will lift anchor out. Otherwise, continue until sails pull anchor out. Haul it in, but not yet secured for sea. keep it available for any emergency (e.g. adverse wind shift or wind failure near lee shore or other vessels).

With mainsheet adjusted, will sail herself to windward. If sailing away from lee shore, ample time to wash anchor, stow it and rode. The chain will have already stowed itself.

Catamarans

Bridle of two equal length legs of nylon. Each thimble/shackled to a bow.

Both thimble/shackled to a central connector plate with vertical upward slot to hold chain. Weight of chain (and maybe safety catch) holds chain in slot. Bridle can be attached to bows or sterns.

Bridles of various lengths should be carried with aim of keeping connector plate off the bottom. But in storm conditions a very long bridge adds elasticity and reduces compression loads on fore beam.

Windlasses

Anchor windlass power

Manual. Wind handle (vertical) lever (horizontal).
Hydraulic. Requires hydraulic motor. Expensive.
Electric, battery powered. Manual override option.

Vertical configuration. Windlass above and vertical to deck, gearbox and motor below deck. Gives 180° wrap on gypsy. Low profile models less obtrusive. Bow roller height must give chain entry at very near 90°. Desirable chain fall 450mm of stack in locker.

Horizontal configuration. Fully enclosed unit, all above deck. Chain wrap on gypsy only 90° (beware if bow roller high). Desirable chain fall 300mm. Manual lever more convenient.

Windlass position. Central over chain locker so chain free falling and self stowing. Sufficient fall to allow for build up. Windlass as far aft as possible.

Installation. Windlass loads spread over deck, hull and bulkheads. Mount on deck plus base plate. Use a waterproof cover. Foot switch placed to aid viewing rode all around bow, yet to avoid being accidentally stepped on.

Capstan/warping drum. Concave, knurled finish. Two turns of rope to retrieve. Most operate independently of gypsy.

Gypsy. Slotted sprocket to grip chain.

Chain. Must accurately fit gypsy, even if new calibrated chain has to be purchased.

Required pulling power. Estimate maximum depth in meters of anchorages, multiply this by weight per meter of chain. Add weight to heaviest anchor. This total must be multiplied by three to allow for a safety margin on windage, tides, etc.

Safe working capacity off windlass. This must be three times the required pulling power. If this gives a figure near the maximum capacity of a windlass, choose the next more powerful model.

Circuit breaker. Essential to protect the windlass electric motor from prolonged overload.

Power supply. A crank battery located ideally in the fo'c'sle. Short and heavy leads to minimize voltage drop. Engine running maintains battery charge. Isolation switch when windlass not in use.

Reversible motor gives greater control.

Chain stopper essential to remove load from windlass (e.g. windlass brake and ratchet pawls).

Chain counter/auto anchor. Useful optional accessory.

DON'T use windlass to pull boat up to anchor. Motor or sail until chain is almost vertical. then use chain stopper or a snubber line and motor or sail out a well-bedded anchor.

NEVER leave a windlass exposed to the potentially high loads at anchor. Use a snubber line or chain stopper, or take the chain to a bollard.

MAINTENANCE. At end of cruise, or at reasonable occasions during cruise, wash down windlass with fresh water and dry off. Spray below-deck drive gear with corrosion inhibitor. Check gearbox oil level yearly and top up with grease or heavy grade oil. Inspect electric wiring every three months.

Glossary

Fetch. The distance wind and swells (or waves) travel across sea to reach boat.

Rode. All types of anchor lines or cable, either chain or rope.

Kedging. Anchor set anchor rode used to pull a grounded boat into deeper water.

Mousing. Eye of shackle pin secured with monel (or stainless) wire.

Samson post. Very strong post in the foredeck to which towing or anchor lines can be fastened.

Scope. The length of rode, from boat to anchor.

Thimble. Metal insert, with concave outer surface. Rope end passed around it and spliced back into self.

Tripping line. Line attached at head of anchor to pull it out backwards.

Willwaws. Fierce sudden wind squalls.