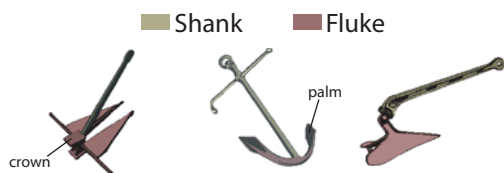


## Major Anchor Types & Parts



- |   |                            |   |
|---|----------------------------|---|
| <b>Danforth</b>                         | <b>Yachtsman</b>           | <b>Plow</b>                             |
| Lightweight, use in mud or as secondary | Rocky, grassy, foul bottom | Large loads, most bottoms etc. soft mud |

Several other types of anchors are used, such as mushrooms for moorings and the Bruce for foul bottoms. Most boats should at least carry an appropriately sized Plow and Danforth.

### Leaving a mooring (under sail):

1. Place the bow into the wind.
2. Raise sail.
3. Choose the best tack based on wind and area.
4. Back the jib and haul back on the mooring line.
5. When the bow reaches 40° on the tack, release the mooring line.
6. Trim the sails.

### Leaving a dock (under sail):

1. Raise sail.
  2. Release the bowlines.
  3. Back the jib to swing the bow away from the dock.
  4. If necessary, fend off the leeward side from the dock until clear.
  5. When the bow reaches 40-50° from the dock release the stern lines.
- Note: If you must leave the dock in a direction into the wind you may have to set an anchor and pull the boat off.

### Leaving a dock (under power):

1. Start the engine.
  2. Release the bow and stern lines.
  3. Slowly motor out of the slip, using the spring line to pull the boat away from one side or the other.
  4. Once ¼ of the boat is free of the dock release the spring line.
- HINT: Release the spring line last and use for leverage to swing the boat in the proper direction.

### Picking up a mooring (under power):

1. Position the boat 150-200 feet downwind of the mooring buoy.
2. Slowly motor forward into the wind and towards the buoy at 1-2 knots.
3. Watch the boat speed and get a feel for the strength of the wind as you move forward.
4. When you are 20-30 feet away from the buoy begin to back down and position bow about 5° off the buoy.
5. When you reach the buoy the boat should be at a stop. This may require you to place the boat in neutral before you reach the power, or just back the power down if the wind is strong.
6. Retrieve the mooring line with a boat hook.
7. Tie off the mooring line.

### Pick up a mooring (under sail):

1. Initially run downwind past the buoy.
  2. Around 50 feet downwind of the buoy, come about into the wind.
  3. Use the momentum to drift upwind to the buoy.
  4. Retrieve the mooring with a boat hook.
  5. Tie off the mooring line.
- Note: The point at which you come about depends on the strength of the wind and speed of the boat. Practice makes perfect.

### Docking (under power):

1. Prepare the spring lines and boat hooks.
2. Approach the dock slowly.
3. Come into the dock at the most shallow angle possible.
4. Throw the spring lines over the cleats on the windward side.
5. Once the boat is ¼ of the way into the dock or slip place the engine in neutral.
6. Attach the stern lines.
7. Attach the bowlines.

### Docking (under sail):

1. Begin your approach downwind.
  2. If the dock is to leeward, steer directly to the dock. If the dock is to windward, pass and come about to approach upwind.
  3. At approximately 20 feet from the dock, release the wind from the sails.
  4. Throw the spring lines over the cleats as soon as possible.
  5. When the boat is ¼ of the way into the dock or slip attach the stern lines.
  6. Attach the bowlines.
- Hint: Tie up to or hook the end of the float or lead slip post on initial approach. Then "warp" the boat around the float end or slip post and into the slip (see illustration).

## How to:

### Choose an anchorage (characteristics):

1. Protected by land
2. Allow you to lie to leeward.
3. Not crowded.
4. Appropriate bottom.
5. Conducive tides (depth and drift).
6. Less than a thirty minute row from shore.

### Anchor:

1. Carefully review on chart before approach.
2. Approach slowly, watching for depth, NAVAIDS and landmarks.
3. Circle the anchorage area once to evaluate.
4. Decide whether or not the anchorage is too crowded. If not, continue.
5. Get out the anchor tackle and ensure there are no tangles or snags.
6. Tie the rode's bitter end to the mast.
7. Slip the anchor under the lifelines and set over the bow roller or lifeline.
8. Work out any kinks in the rode.
9. Bring the boat into the wind at the anchor spot.
10. When the boat comes to a complete stop, drop the anchor.
11. Set the engine in reverse or back the main.
12. Play out the appropriate amount rode according to the scope.
13. If the bow dips and swings toward the rode, the anchor has hooked. If not, continue slowly in reverse, releasing small amounts of the rode until the anchor hooks.
14. If necessary, reduce the scope.

### Weigh anchor:

1. Move the boat forward towards the anchor, retrieving the rode.
2. When the boat reaches the anchor, shift the engine in neutral or back the sails.
3. Cleat the taunt rode.
4. Move the boat forward to free the shank.
5. Use hand over hand or a windless to retrieve the rest of the rode and the tackle.
6. If necessary, clean the anchor before bringing it aboard.
7. Untie and/or cleat the rode and stow the rode and tackle.

Wind speed and resulting load in pounds				
Boat length (feet)	15	30	42	60
20	90	360	720	1440
30	175	700	1400	2800
35	225	900	1800	3600
40	300	1200	2400	4800
50	400	1600	3200	6400
60	500	2000	4000	8000

Anchor and rode selection (wind at 30 knots)							
Boat length (feet)	Anchor type (lightest to heaviest in pounds)				Rode diameter		Chain Length (lightest to heaviest in feet)
	Danforth	Plow	Bruce	Yachtsman's	Nylon	Chain	
20	5	15	11	25	3/8	1/4	6-33
30	12	20	17	35	7/16	1/4	16-46
35	12	25	22	45	1/2	5/16	11-40
40	20	35	33	55	1/2	5/16	18-48
50	35	45	44	75	5/8	3/8	21-46
60	60	60	66	100	3/4	1/16	27-44
42 knot winds – Multiply each by 2							
60 knot winds – Multiply each by 4							

### Tips:

1. If the boat "sails" on the anchor, try setting a small riding sail such as the mizzen or storm jib or secure the rode slight to the side rather than directly at the bow.
2. Setting two anchors allows lower scope and decreases swinging.
3. Check the bitter end of the rode at least once a year and replace any fraying.
4. Make sure the deck is clear after anchoring.
5. Single-handed anchoring is achievable by running the rode from the cockpit and then moving the rode.
6. To retrieve your rode from under another, run another line under the other rode and row out towards the anchor position to lift the other rode.
7. To keep track of anchor position, run a second or "trip" line from the shank attached to a buoy. The amount of line from the shank to the buoy should be the depth of the water at high tide.

### Collision Avoidance:

When anchoring around other boats...

1. Use the smallest scope appropriate.
2. Calculate your swing radius:  

$$\text{length} + \sqrt{(\text{rode})^2 - (\text{depth} + \text{freeboard})^2}$$

Scope  
 - Ratio between the rode and distance between the deck and the water line  
 - Increases horizontal pull  
 - The heavier the wind, the larger the scope or horizontal pull necessary  
 - Horizontal pull can also be increased by chain instead of rope  
 - A kelleet or sliding weight of 20-50 pounds can also be used to increase pull  
 - The deeper the water, the heavier the rode (for more pull)