

# *J/22 Sailing* **MANUAL**

## **UCI SAILING PROGRAM**

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# Introduction to the J/22 Keelboat

## How to use this manual

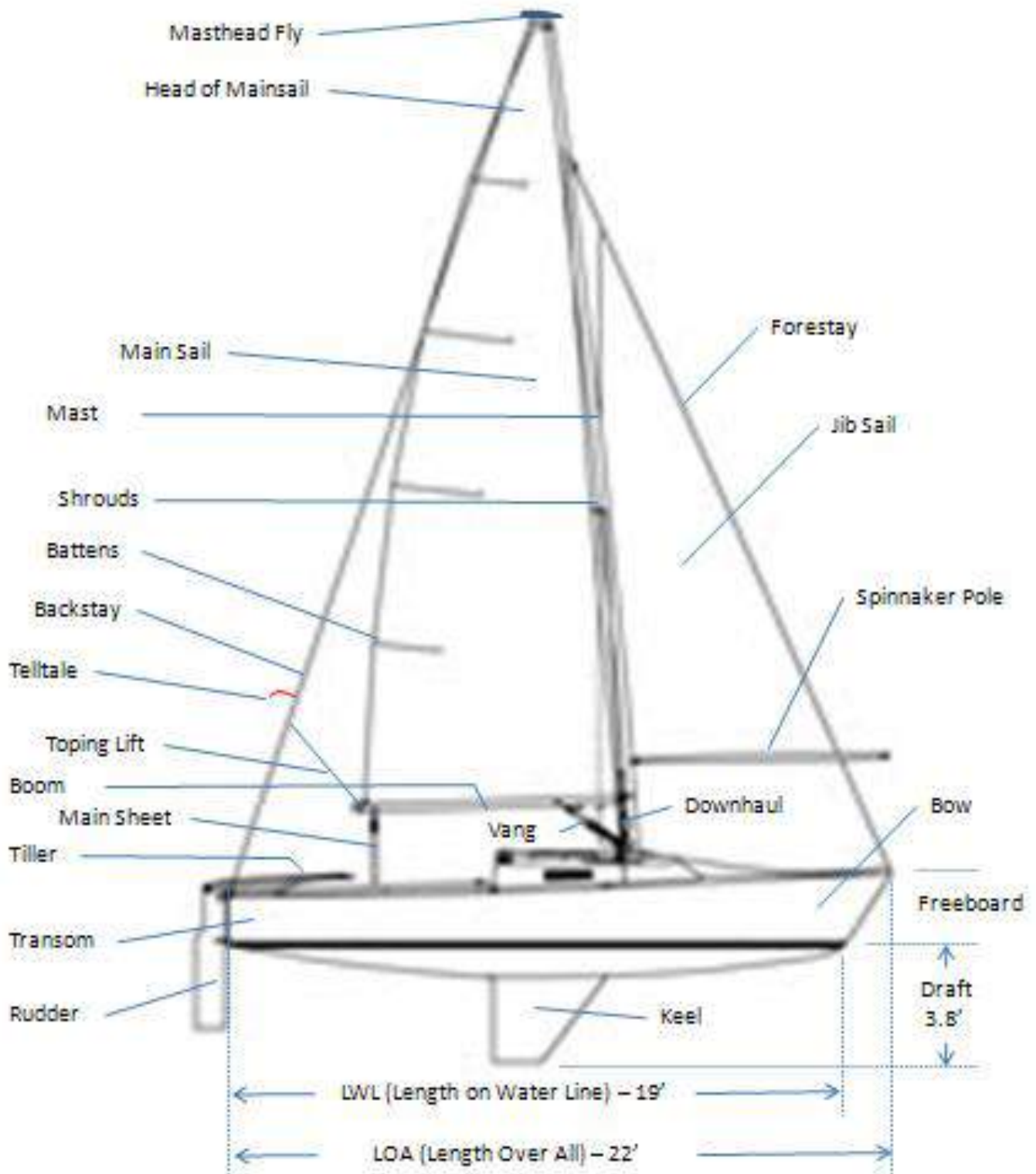
You should read and thoroughly understand sections 1 - 3 of this manual before you take your written and on the water J1 rating tests. After you have your J1 rating you may want to refer back to this manual to answer specific questions you may have. Sections 1 - 3 of the manual should be reviewed with particular attention to Section 3 prior to taking a J2 rating test and Section 4 of the manual should be read prior to your J3 rating test. This manual is not intended as a complete guide to sailing. For some information you may refer to the UCI Capri manual and other sources.

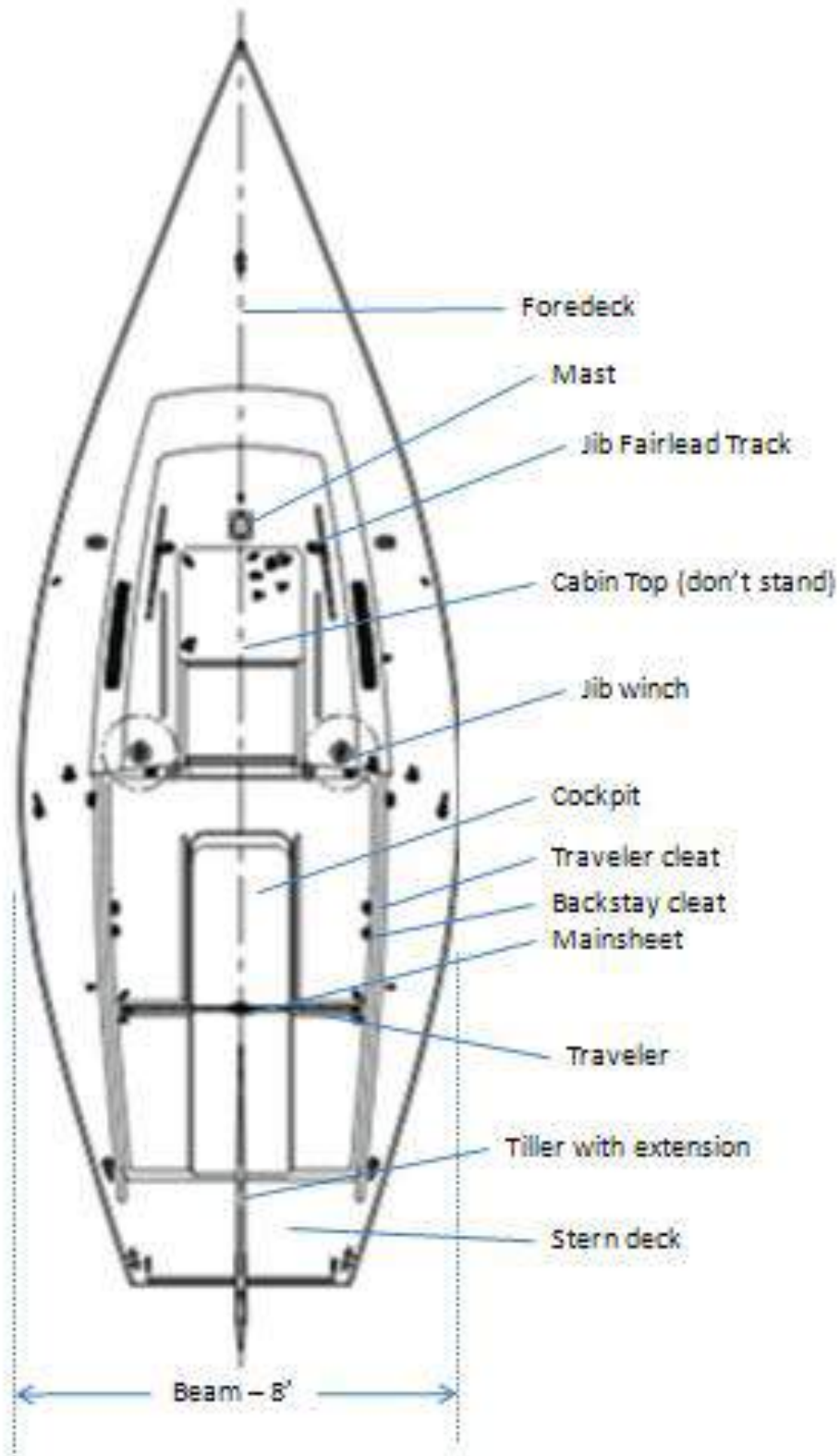
## Background Information

Welcome to sailing keelboats. J/22 keelboats are excellent instructional boats for intermediate and advanced sailing as well as terrific boats for day sailing and racing. UCI's sailing program is possible because participants respect the boats, sails, equipment as well as the rules and procedures established for their safe and effective use. When sailing, you are responsible for the boat and your passengers. We hope that you will understand and cooperate with our rules so that you can join the fraternity of happy UC Irvine sailors.

The J/22 is an 1800 pound fin-keeled sloop with a deck-stepped mast, three sails, a large cockpit, and a deck layout suitable for a 3-4 person crew. Hulls and decks are built with balsa wood cored fiberglass laminates designed to endure years of hard use. The J/22 offers the exciting performance of a sport boat with the stability and safety of a fixed lead keel. For UCI sailors, the J/22 presents new things to learn and differences from the Capri's, but once you learn to sail the J/22, you will find it to be a fun and challenging boat.

UCI's fleet of J/22's is maintained with the intent of offering a one-design class, with all the boats equally matched in terms of sails, rigging, and overall condition. Since its introduction in 1983, the J/22 has grown into an international class with over 1,600 boats sailing in 65 fleets in 18 countries. On the merits of its sailing characteristics, widespread popularity and small crew number (3-4), the J/22 continues to be the boat of choice for intercollegiate sloop and match racing as well as many national and international keelboat sailing championships.





## Getting to Know the J/22

The J/22 has both familiar and new equipment you will need to know. The J/22 is lighter, more tippy and dinghy-like than the Shields keelboats that UCI formerly owned and OCC still uses. It is therefore easier to transition from sailing the UCI Capri to the J/22 than it was previously with the older, heavier keelboats.

### Keel

The most obvious new element of sailing keelboats is the keel, this weighted underwater fin will help keep the J/22 upright and sailing straight.

### Bow and Stern Lines

Each boat should have one long bow line and one long stern line. Always take these with you. The bow line is tied on one of the eyes on the foredeck of the boat, and the stern line will be tied to either the port or starboard stern-cleat.

### Spring Line

A line led from a dock cleat or stern cleat of the adjacent boat to the winch to prevent the boat from moving forward in its slip. Each boat should have one spring line on board and there are fixed spring lines on the dock. Use depends on which slip your boat is tied in. More on that later.

### Mast Head Fly

A vane at the top of mast that indicates the wind direction

### Adjustable Backstay

Part of the standing rigging attached to the stern and top of the mast that prevents the mast from falling forward. Tightening the backstay will bend the mast to help flatten the main sail. The control line is led to cleats in the cockpit, forward of the traveler cleats. There is one backstay cleat on each side of the boat.

### Main Sail Controls

#### Main Halyard (white line with black flecks)

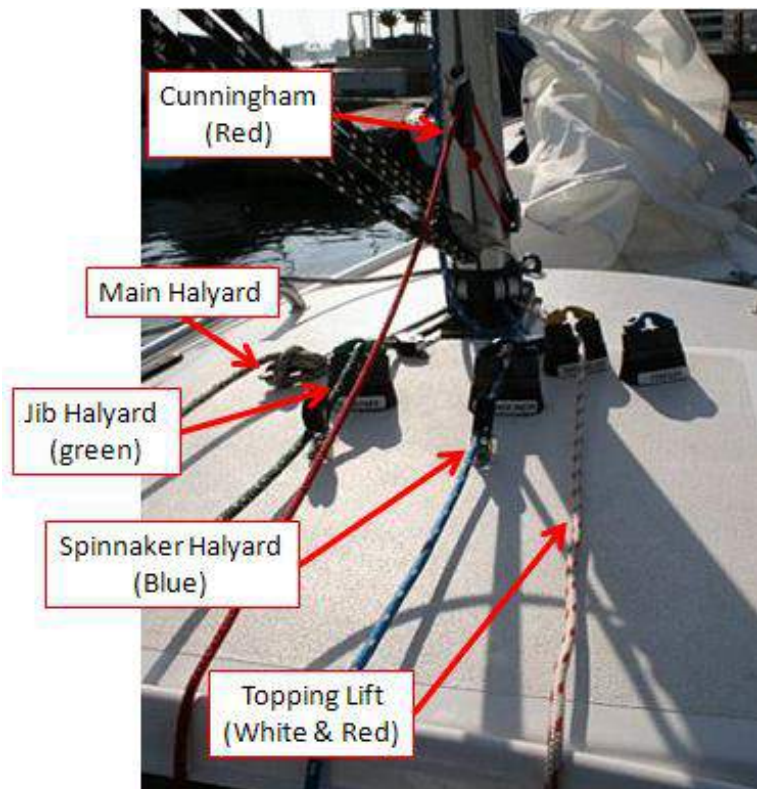
Used to raise the mainsail. The cleat is located on the port side of the cabin top.

#### Boom Vang (black line)

Block and tackle system that pulls down on the boom and controls the leech (back edge) of the mainsail.

#### Cunningham (red line)

This smaller diameter red line uses a hook that you must place in a grommet (reinforced hole in sail) above the tack of the mainsail,



allowing you to adjust the luff tension of the mainsail.

### **Boom Topping Lift (white plastic-coated wire)**

This is a plastic-coated wire that attaches from the backstay to the back of the boom. The boom topping lift holds the boom up for safety while rigging and to prevent the boom from hitting the deck and causing damage. Once the mainsail is raised, you unclip the boom topping lift from the boom and secure it to the backstay above the blocks that allow you to tighten the backstay.

### **Traveler**

The mainsheet traveler allows you to adjust where along the port-starboard axis the mainsheet tackle is attached to the boat. It is adjustable and helps control the shape of mainsail. The traveler can also be used control heeling. The bar that the traveler slides on runs across the cockpit forward of the tiller. It divides the cockpit. The traveler can be adjusted from either side of the cockpit on a continuous line.

### **Reefing Line (blue line)**

Used to reef the mainsail, this line pulls the lower part of the sail toward the boom-end at the leach. The control is through a jamb-cleat with a lever inside the forward end of the boom.

## **Jib Controls**

### **Jib Halyard (green line)**

Used to raise the jib.

### **Jib Sheets (white lines with blue flecks)**

Used to sheet the jib.

### **Jib Fairlead Tracks**

These tracks adjust the angle at which the jib is sheeted for various wind conditions by moving the block through which the jib is sheeted forward and aft on deck. With our current jibs, the jib fairlead blocks are usually placed with three holes showing on the tracks in from of the fairleads. They should be moved back one or two holes in stronger winds.

## **Winches**

### **Description**

A winch is a mechanical drum used to assist in pulling on a line. Mechanical advantage comes from the winch handle attached to the drum working along with friction.

### **Location and Type**

- Winches are mounted on the cabin top on both sides of the boat to trim the jib sheets.

### **How to Use**

- Wrap the line around the winch **clockwise** (looking down from above winch). Image on the left.
- Keep your fingers clear of the line as you wrap it on the winch!
- Pull the majority of the slack from the line with **1 wrap** around winch.



- Once mostly tight, wrap additional wraps around the winch.
- To tighten line further, pull on the line and crank the winch handle (stored in the white plastic pocket nearby) at the same time.

*Note: Be careful not to get an **override** when using a winch. See image on the right. This is created when you apply too many wraps when pulling in slack under a load or when the line is pulled from the winch below a horizontal position. If you do create an override, you will need to unwrap the line and apply pressure upward to remove it from the winch.*

## Preparation and Rigging

### Pre-Sailing Checklist

#### Check the Weather

You can check weather sources online at the UCISA website (sailingclub.net) or call the Newport Beach Harbor Patrol marine weather recording at **(949) 675-0503**. Program the Newport Beach Harbor Patrol phone number **(949) 723-1002** into your phone for use in an emergency. You may also call 911 and ask that your call be directed to the Newport Beach Harbor Patrol.

Check the current weather and predicted weather for the day. Double check the weather once you arrive at the sailbase and again before you leave the dock. Weather predictions are not always correct.

Make sure:

- The wind is under 18 knots
- No Santa Ana winds (wind is not strong from the North or East)
- Note height and times of high and low tides

#### Make sure you have proper personal gear

- Closed-toed non-marking shoes
- Hat or visor
- Sunglasses
- Sunscreen
- Wind and waterproof clothes
- Drinking water

**Be sure to check the logbook and sign out your boat.** (you do not do this in classes)

### Rigging

1. Remove the cockpit cover, roll or fold it and stow under foredeck. Don't leave the cover on the dock.
2. Look over the boat to make sure all the equipment is in working order.
3. Get a long-handled brush from the dock box next to the J/22 jib box and brush the algal growth off the rudder. This should be done every time before you sail. Return the brush to the box when you get your jib.
4. Open the sliding hatch cover all the way. Always leave the cover open, and never step on it.



5. Remove the plexiglass hatch board and carefully set it on the cover. Be careful not to scratch it.
6. Get a jib from the dock box, place the jib on the foredeck and then place the hatch cover in the jib bag to protect it.
7. Take off the tiller cover and stow it with the cockpit cover. Look at the tiller extension and be sure that it is not worn at the universal joint.
8. Clear lines from the top of the cabin. Let them drape into the cabin.
9. Go below deck and close the storage hatches and place the floorboards in position above the keel bolts.
10. Check for safety equipment. The Coast Guard requires the first three below.
  - One life-jacket per person (Type I, II, or III PFD)
  - One throwable cushion (Type IV PFD)
  - Three visual distress signals (flares)
  - Anchor with chain and rode attached
  - Paddle
  - Bailer
11. The paddle, hatch cover and spinnaker pole should be stored aft under the cockpit.
12. Stow personal gear below deck.

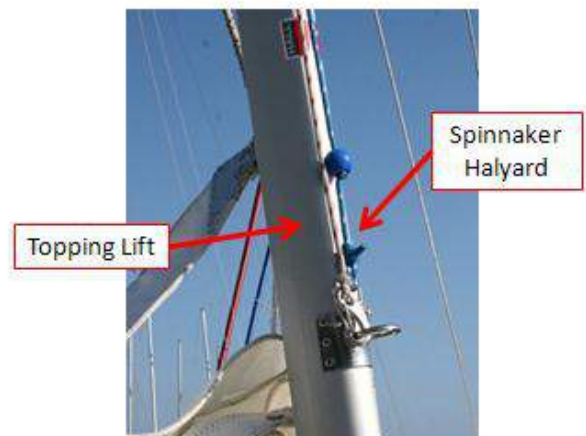
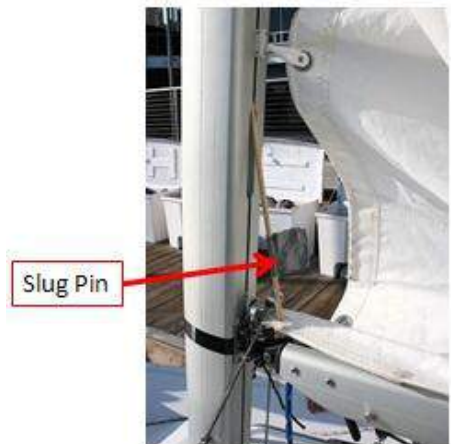
13. Remove PFD's from the cabin and have skipper and crew put them on for safety. The water is usually cold and it is difficult to swim with clothes on, so a PFD can literally be a life-saver.

### Rigging the Boat

Prepare the sails to be raised but do not raise sails during these steps!

### Prepping the Mainsail

1. Find the main halyard at the end of the boom and detach it. Look up the mast to make sure the halyard leads straight to the masthead and is not wrapped around the backstay or anything else.
2. Make sure the sail isn't wrapped around the boom then attach the halyard to the head of the sail.
3. Remove the wooden slug-pin with duct tape from the sail-slot of the mast and install the sail-slugs attached to the luff of the mainsail into the slot on the mast beginning with the top slug. Replace the



slug-pin in the mast slot to hold the sail slugs in place while rigging. *Note: the slug-pin is a UCI addition to the J/22. It makes rigging and unrigging easier by holding the sail-slugs in the mast slot.*

4. Take up the slack in the main halyard and re-cleat it.
5. Form a pocket using the bottom of the sail and stuff the rest of the sail into it. Use a sail tie to secure the sail to the boom.
6. Untie the mainsheet from the boom. It should be tied with a clove-hitch.
7. Leave the mainsheet cleated to stabilize the boom.
8. Release and slacken the boom vang.

### Prepping the Jib

1. Detach the spinnaker halyard (blue line) and the spinnaker pole topping lift (white line with red flecks) from the jib tack shackle or bow pad-eye and attach them to the ring on the front of the mast. Take up the slack in these lines. The lines are controlled from the cleats on the cabin top.
2. Unfold the jib making sure that tack (the front lower corner) is toward the bow.
3. Attach the jib tack to the jib tack shackle. Starting at the bottom, attach the jib hanks (the spring-hooks attached to the luff of the jib) to the forestay; clip them on from the same direction all the way up to the head of the jib. When you reach the head, make sure the jib halyard runs clear to the mast, then attach the jib halyard to head of jib.
4. Uncoil the jib sheets and lead them aft through the fairlead blocks mounted on tracks on the deck. Tie a figure-eight knot in the end of each jib sheet.



### Checking the Backstay

Be sure to have some tension on the backstay before you leave the docks. It should never be completely slack. The backstay adjustment is located in the cockpit forward of the traveler cleats. Generally, you will want the backstay tighter in heavy winds and not so tight in lighter winds. Also, it should be tighter when going to weather in order to keep the jib luff tight.

*Note: Tighten backstay by hand.*

### Preparing to Leave the Dock

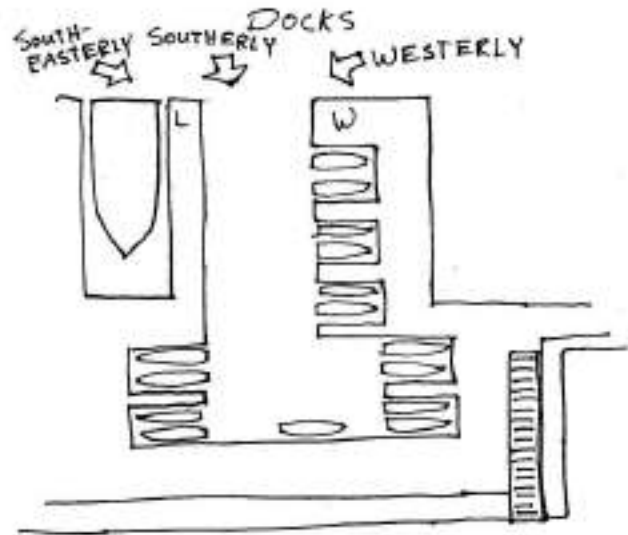
Before you leave the slip, you must have everything ready to go and double-checked so that you don't occupy the exit channel any longer than necessary. The space between the docks is narrow and other boats may need or want to enter or exit. Train your crew in their responsibilities while safely in the slip. For example, if you have two crew members, one should hold the tiller to help the boat back straight and avoid obstacles, while the other person can

stand holding on to the shrouds and fend the boat off with their foot while you pull the boat back out of its slip and then forward along the long dock, labeled L in the figure below. Re-check the wind direction, wind velocity, and the tide.

1. Check for traffic both coming in and going out of the docking area.
2. Back the boat out of the slip and push away from dock enough so you can turn the boat perpendicular to the slip. Keep the boat parallel to the slip as long as you can before turning it. This will help keep it from hitting other boats. Use the bow and stern lines as well as the shrouds to control the boat. Once it is turned, keep the boat off the docks and the other boats rudders.
3. Take the boat to the dock perpendicular and adjacent to the J/22 slips (labeled L in the figure below).

### Deciding Where to Push Off From

You should raise the sails with the boat pointed into the wind in a location where the boat has room to float downwind of the dock and where you have room to accelerate when you depart. During launching, when moving the boat about, be mindful of the momentum of the boat and watch your limbs. Never fend off with your hands between the boat and dock. Grab the boat by the shrouds if you are standing on the dock or fend off with your foot.



### *In a Westerly or Southwesterly wind*

Move the boat to the OCC Shields dock (labeled W in the drawing) on the other side of the docking area. Turn the boat towards that dock and then give it a strong shove as you step on board or while standing on the stern, so that the boat goes directly across the channel to the dock with you on board. Ideally you should have one person already across the way to catch the bow. Alternatively, have someone standing on the bow holding onto the forestay ready to catch the dock. Raise the sail or sails near the end of the dock. Watch out for overhanging boats!

### *In a Southerly or Southeasterly wind*

Often the wind switches direction during the day; i.e. it often blows from the south in the morning and then gradually switches to southwest or west in the afternoon. Watch for this and evaluate which direction it is moving. If the breeze is coming steadily from the Southeast or South, launch the boat from the end of the dock nearest the J/22 slips (L).

### *In a Northerly*

Don't go sailing. This wind direction means that there is a Santa Ana wind. These winds are usually gusty, strong, and unpredictable. The docking procedure also doesn't work in Santa Ana winds.

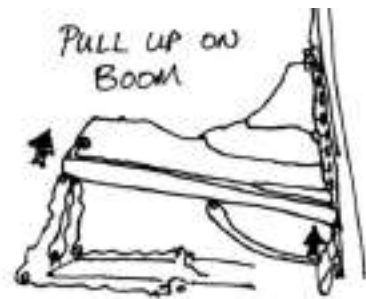
### **Raising the Sails**

You should spend a minimum amount of time with sails up and luffing at the dock, because sails wear out from luffing and because you will be blocking the channel so that no other boats can get in or out. Therefore, you should have your boat ready to go, as detailed above, before you leave the slip and you should be efficient in getting your sails up and the boat out sailing. It is easier to leave the dock with the jib down, especially in a southerly wind. The boat sails well, and you will be less likely to get blown into the dock. You can raise the jib easily once you are out of the dock area.

### **Raising the Mainsail**

Always raise the mainsail first to keep boat headed into wind.

1. Double check that the boom vang is uncleated and the Cunningham (downhaul) is not attached.
2. Uncleat and free the mainsheet so that it can easily run out through the blocks.
3. Lift the back of the boom, to put slack into the mainsheet and boom vang.
4. Hoist the mainsail with the main halyard by pulling directly from the mast base or using the winch until the sail is all the way up. *Note: Don't use the winch handle to raise the sail since you might over-tighten the halyard and break something.*
5. Have someone on the stern or dock verify that the mainsail is completely raised.
6. Cleat the main halyard by wrapping it once straight around the cleat before starting the figure-eight pattern to secure the halyard on the cleat. The skipper should do this since inexperienced people may inadvertently let the sail come down a little while cleating the halyard.
7. Stow excess halyard below the cabin deck on the port side.
8. Tighten the outhaul and snug the boom vang.
9. Hook the Cunningham hook into the grommet above the tack of the mainsail and set the tension appropriate for the wind conditions. *Note: The Cunningham should be loose in light winds (perhaps just tight enough to take the wrinkles out of the luff of the mainsail) and tighter in stronger winds to flatten the mainsail and keep the maximum draft in the middle of the sail.*



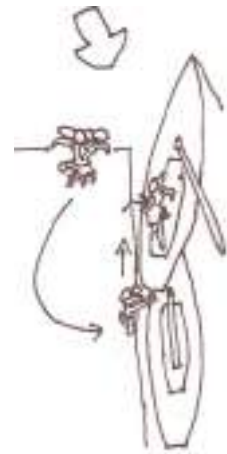


### Raising the Jib (this can be done at the dock or once you are under way)

1. Check the jib sheets to be sure they are not cleated.
2. Hoist the jib with the green jib halyard.
3. Tighten the halyard enough to eliminate the "scallops" in the front of the jib (see figure), but avoid vertical lines in near the luff of the sail.  
*Note: As a general rule, the luff of the jib should be as tight at the forestay.*
4. Coil excess halyard and place it below the cabin, also on the port side. *Note: You can also adjust sails underway. See the "Sailing well" section.*

### Leaving the Dock

When pushing off from the dock you must provide significant forward momentum to the boat to avoid making excessive leeway before the boat is able to accelerate on its own. Nevertheless, you should allow room for a little leeway (sideways slippage), as the boat accelerates. Trim the sails as you leave the dock. In a southerly breeze you will need to turn the boat away from the wind to fill the sails and accelerate. The sails help turn the boat so it is important to understand how that works. See the section on "Windward and Leeward Helm" for a more detailed explanation.



Let's walk through the process of leaving the dock:

1. Check for traffic in both directions.
2. Turn the boat so that it's facing where you want to go. You can backwind the mainsail to turn the boat.
3. Make sure someone is holding the tiller straight during the push-off.
4. Using the shrouds, push the boat forward with a long, steady motion.
5. Step onto the boat after it has enough speed to depart.
6. Once you have departed, turn the boat if necessary and trim the sails to accelerate. Don't turn too quickly or your stern may hit the dock.
7. Once you are underway remove and stow the fenders. You do not need to remove the bow and stern lines, just coil them neatly. If you are going for a long sail, or out of the harbor, you may remove them, but be sure to have them ready when you prepare to dock.

### Docking

When preparing to return to the dock, plan your docking maneuver well in advance. It is better to give yourself extra room to perform docking and take things slowly. Remember that the boat has a glide zone where it will continue to move forward due to momentum. The J/22 has a longer glide zone than a Capri 14 because it is a heavier boat.

#### Preparing to Dock

1. Inform your crew about the docking procedure and assign them tasks
2. Look for boats blocking your path as well as other boats being rigged for launch.

3. Ready dock lines and attach fenders.
4. Check the wind direction and make sure that when you start the docking procedure, you are directly **up wind** from the sailbase. This will change as the wind shifts, so always double check the wind direction.

**Lower Jib**

1. Turn the boat into the wind then take the jib down by releasing the jib halyard and gathering the sail on the foredeck.
2. Have a crew member on the foredeck pull the jib down and secure it with a sail-tie if it is windy.
3. Tighten one jib sheet and cleat it to keep the jib on the foredeck.

**Lower Mainsail**

1. Sail upwind of the sailbase prior to lowering the mainsail. Sail at least one boat length upwind of the sailbase per knot of wind: e.g. 10 boat lengths in a 10 knot wind. More than this is also OK.
2. Assign one crew to operate the halyard, one to pull the sail down at the luff, and explain tying off sail.
3. Point the boat head-to-wind and attach the boom topping lift.
4. Release the main halyard and pull the sail down quickly.
5. Feed the halyard out while someone pulls down on sail. *Note: Halyards may get stuck at the mast exit block if there is no tension on the line.*
6. Pull aft on the back of the sail to create a pocket and stuff the rest of the sail into it.
7. Tie the sail to the boom and tighten the mainsheet to secure the boom. The sail must be fully lowered and tied up to give the skipper a clear view and to prevent it from catching wind while you approach the dock.

**Sailing Downwind under Bare Poles or with Jib**

The boat will be either stopped or moving very slowly. Turn the boat downwind and drift towards the dock without sails. If the wind is light or you are going too slowly you may raise the jib briefly and then lower it again as follows.

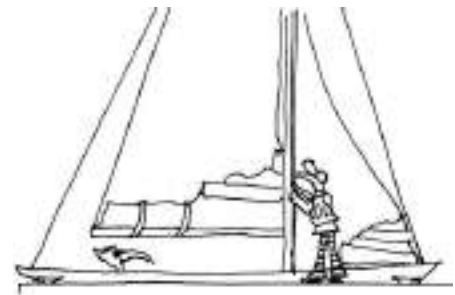
1. Have crew ready on jib halyard and someone on deck to collect the jib.
2. Lower the jib soon enough so that the boat will approach the dock slowly. This can be done a few boat lengths away from where you enter docks. Lower the jib earlier in higher winds or better yet, approach the dock with both sails down, under "bare poles", when it is windy.

## Approaching the Docks

Make a wide turn so that you are facing straight into the docking channel 2 or 3 boat lengths away from entry point. If for some reason the channel where the slips are is blocked and it is unsafe to enter, you must abort your landing before you enter the dock area. You will need to turn the boat, raise the jib if it is down and work your way back upwind under the jib. You may not be able to sail on a closed hauled course initially, you might need to reach a bit first, to get enough speed and control. See the section on sailing under jib alone in "Sailing Well". If the path is clear, lower the jib, if it is up and begin slowing the boat.



1. If you are moving too fast use rudder braking to slow the boat. To do this, move the tiller all the way to one side and hold it there until the boat just starts to turn (maybe 2 seconds), then push the tiller all the way to the other side and repeat the process. You aren't trying to turn the boat, but are using the rudder as a brake in the water.
2. Be sure to make a wide turn into the slip and have someone between the shrouds and mast ready to **step** (not jump) off the boat onto dock.
3. If the boat needs to be slowed more, the crewmember on the dock should stand in front of the shrouds and push aft on them to slow the boat. You can also place the spring line on the winch as the boat is coming in.  
*Note: Never try to stop a boat with your hands or feet between boat and docks. They will be crushed.*



**Learning how to get the J/22 in and out of the slip takes practice, and you must always be aware of wind direction, speed and traffic. Later we will discuss some hints and techniques to make it easier and safer.**

## Securing the Boat

Secure the boat by reversing the procedures for rigging.

### Dock Lines

1. First put the spring line that is secured on the dock onto the winch.
2. Next, put the stern line that is secured on the dock onto the stern cleat on the boat
3. Then cleat the bow line on the dock, keeping the boat parallel to the dock. The fenders should be at the widest point, attached to the cleats on deck on both sides of the boat.

**Remember, the docking order so that the middle boat is never the last to dock.**

If you return to an empty slip, land at the inner dock (closest to the sea wall) and tie your boat up there. If you are the **second boat in the slip**, dock next to the open outer dock and then once the boat is de-rigged, **move it over next to the boat that is in the slip closest to the sea wall (same for either slip) using side-ties**. You will be the middle boat, leaving the dock side slip

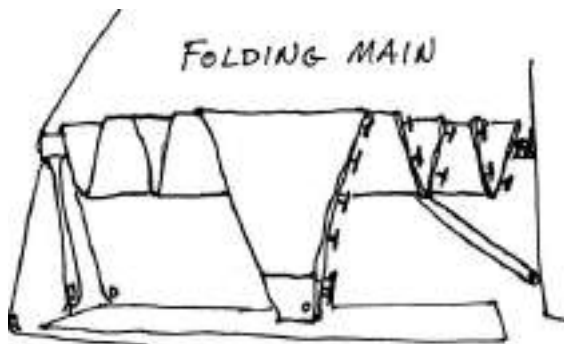
nearest the channel open.

When tying up the middle boat (which is the second boat in the slip) use the bridle lines that are fixed on the dock at the bow and hook them to the eyes on the bow of the boat. There should be two lines for the bow. This will keep the bow snug. Use a spring line between the stern cleat of the boat that is tied to the inner dock, and the winch of your boat (the middle boat). These lines are pre-measured with fixed loops on both ends. These spring lines will keep the boat from going too far forward in the slip and **will keep it parallel to the boats on both sides if the stern lines are tied correctly.**

Next, tie the stern-line of your boat, to the boat that is tied to the inner dock. When the third boat comes in to the slip, they will be able to use the dock to stop. They will use the fixed stern **and spring** lines and will secure the boat's bow-line to the cleat on the dock.

Use a spring line from the outer boat to the middle boat. **When all 3 boats are in the slip there must be spring-lines on both sides of the middle boat and the stern lines from each outer boat attached to the middle boat.**

**If there are only two boats in the slip, the middle boat will only be tied up to the dock at the bow and to the other boat. Do not block the open slip with spring lines or a stern line.**



boom.

#### Mainsail

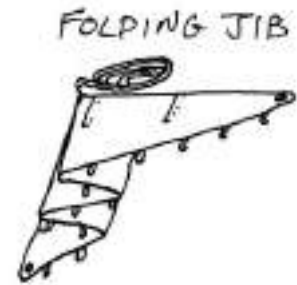
1. Attach main halyard to the end of the boom and take up slack.
2. Untie main sail ties and pull out the slug pin, releasing the main sail slugs.
3. Fold the sail on top of the boom, keeping the battens straight, then use sail ties to secure the sail.
4. Note: The luff of the main sail should move aft as you fold it so that the battens remain parallel to the boom.
5. Cover the tiller and clip the shock cord to the grommet on the tiller cover to secure the tiller.
6. The backstay should be snug and cleated, but not too tight.

Loosen the backstay, so that there is a small amount of pressure on it. No slack, but not pulled tight. The mast should be straight. To do this, you may need to loosen the mainsheet a bit. If the mainsheet was cleated when the backstay was tight, then as you loosen the back stay the boom could rise, and you should loosen the mainsheet to allow this. Once the back stay is re-cleated with light pressure, snug up the mainsheet.



### Foredeck

1. Remove the jib from the boat and fold it on the dock or dock boxes. Fan fold, keeping the leech in line, then fold toward the tack, placing the coiled jib sheets inside the sail. Place the folded jib in its bag and stow it in J/22 Jib dock box.
2. Attach the spinnaker halyard, spinnaker pole topping lift, and jib halyard to the jib tack shackle or bow pad eyes and take up the slack.



### Finishing Touches

1. Remove all personal belongings.
2. Rinse the boat thoroughly. Be sure to rinse all blocks, tracks and fittings in the cockpit, on the deck, mast and boom. Rinsing with fresh water is needed to remove salt, which can build up and cause friction and corrosion.
3. Replace the cockpit cover. Tie it tightly so that water drains off the cover.
4. Report any damage in the log book.
5. Take one last look at boat, making sure halyards are snug and boat is in proper position parallel to the dock.

## Sailing Well

At UC Irvine Sailing, we strive to sail our boats well, which means always sailing efficiently, having control over your boat, and avoiding hazardous situations. Newport Harbor is a crowded sailing environment in which refined sailing skills, alertness and courtesy are necessary.



### Skipper Responsibility

Many of the same skills needed in sailing smaller boats apply to the J/22. You are responsible for the boat and passengers you take out. Be sure your passengers have swimming ability and are prepared for the trip with sun protection, water, and adequate clothing. Now let's talk about other basics.

### Where to Sit

The first objectives are to steer the boat properly and to avoid collisions. Proper seating position is very important to maintaining good control of the boat and having good visibility to watch where you are going and sail trim. The skipper should be seated opposite the mainsail and forward of the tiller. Keep a gentle grip on the tiller extension and mainsheet.

### Proper Lookout

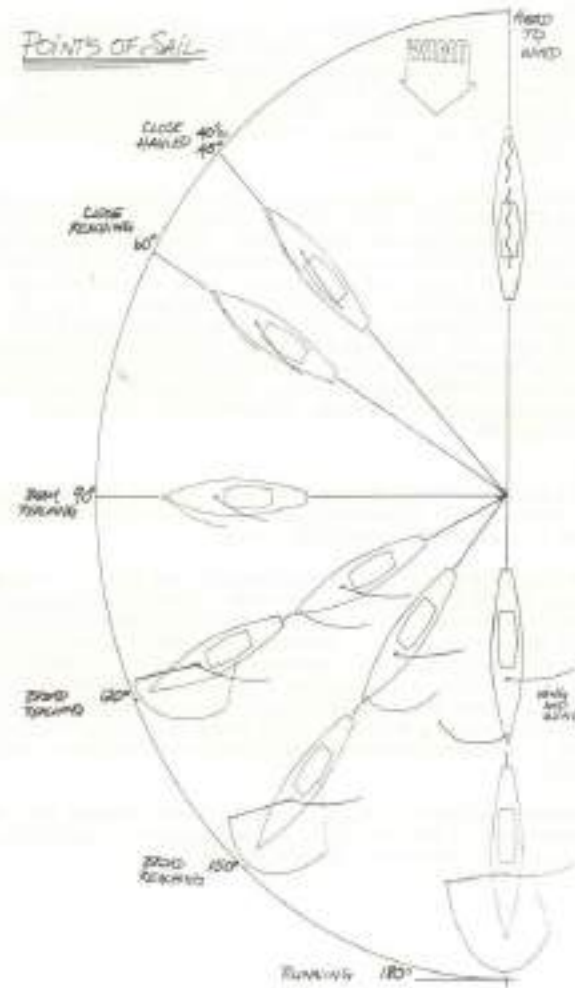
Skipper must be aware of traffic and obstacles, keeping proper lookout at all times. This may

mean designating a crewmember as the "lookout" to scan ahead of the boat, especially in the area obscured behind the jib. Don't get distracted in conversation or eating such that you neglect this responsibility!

## Points of Sail

### Heading of the Boat Relative to the Wind

1. **"Head to wind"** (bow points into the wind) - The sails are luffing even if they are in tight; the boat slows down or stops when "in irons". Used to slow down during an approach to a dock, mooring or anchorage.
2. **"Close hauled"** (bow points 40 - 45 degrees to the wind) - The sails are in tight, the jib is in all the way; the main is set to a balanced or slight "weather helm" condition - usually with the boom near or on the centerline of the boat. This is the most efficient point of sail to get to an upwind destination.
3. **"Close reach"** (bow approximately 60 degrees off the wind) - The fastest point of sail under most conditions, the difference between this and close-hauled is quite apparent. The sails are out or "cracked" just slightly, and the sails are adjusted instead of the course if the wind shifts.
4. **"Beam reach"** (90 degrees) - The wind coming from "dead abeam" means the sails will be about halfway out.
5. **"Broad reach"** (120-160 degrees) - The wind is coming over the stern quarter. The main should be out almost all of the way, with the jib set just in from luffing or possibly "winging" it to windward on a very broad reach. When racing, the outhaul, downhaul and backstay may be eased for improved sail shape on a very broad reach or run. When on any reach the intention is usually to head straight toward the objective. Therefore, the sails will normally be adjusted rather than the course (tiller) when the wind changes.
6. **"Running"** (180 degrees) - The wind is dead astern and the apparent wind speed (true wind minus boat speed) is very slow. The sails can be set "wing-and-wing", one to either side. The



FIG

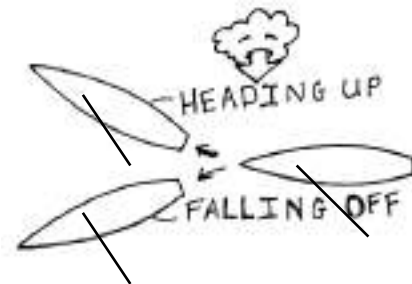
wind direction should be carefully monitored to prevent an accidental jibe, preferably by watching a telltale on the shroud or the masthead windvane. It is easy to be caught sailing "by the lee" when sailing dead downwind. This happens when a slight change in wind speed or direction causes the wind to come over the lee side of the boat (same side as the main). To correct this, head up slightly by pushing the tiller towards the main, otherwise an accidental jibe may occur.

## Sailing Basics

Proper sail trim involves many constantly changing factors including boat heading and wind speed. Sail trim begins with some simple rules, progressing through refinements toward a theoretically perfect shape, or combination of shapes, for a given sea, wind, and heading.

### Heading Up

"Heading up" is the maneuver of turning the bow closer to the wind. At the command from the skipper of "heading up" or "coming up", the tiller is put to leeward until the desired new course is reached.



### Falling Off

"Falling off" is the opposite of heading up and, therefore, a course change away from the wind. At the command of "falling off", or "coming down", the crew would be letting the sheets out, making final adjustments as the new course is reached. When beating (sailing close-hauled), you leave the sails set and fall off or head up to adjust your course, in response to changes in wind direction or velocity. When reaching, or running, you steer a straight course and adjust your sails in or out as the wind changes. When you are falling off sharply, for instance to avoid a collision, you must be sure that the mainsail is released and let out. If not, you will not be able to turn sharply.

## Tacking the J/22

"Coming about" or "tacking" is the maneuver of heading the boat up until the bow crosses "head to wind" and the sails fill on the opposite side. You should ensure good communication, as there may be more people in the boat than when Capri sailing. Efficient tacking requires that the boat be turned through approximately 90 degrees, the sails are filled on the opposite side and speed is maintained throughout the turn. Here are the steps:

1. Skipper: "Ready to tack" or "Ready to come about"
2. Crew prepares opposite jib sheet and replies "Ready"
3. Skipper says: "Tacking" or "Coming about" or "Hard a lee" while pushing the tiller towards the leeward side of the boat (side with the sail).
4. During the tack the crew should uncleat the jib if it is cleated and then pull upward to release the jib sheet from the winch and sheet the jib on the opposite side. *Note: Remember the rules for proper jib sheeting on the winch and use **1 wrap** until*



*the jib is mostly sheeted. Then fill the winch with wraps. Be sure to keep fingers a few inches from the winch to prevent injury.*

5. The mainsheet normally does not need to be released when tacking upwind since the sail will be luffing during the tack anyway.
6. The skipper and crew should both change sides while the boat is turning.
7. The skipper should change the hands holding the tiller and mainsheet by momentarily holding both in one hand.
8. Continue your turn until the sails fill on the new tack then stop the turn by returning the tiller to the center of the boat. *Note: Not completing your tack will slow the boat down, and luff the sails. When tacking, anticipate your next course and be sure to complete your turn.*

### **Jibing the J/22**

The simplest way to jibe is with the boat already headed downwind. Remember that when jibing the boom will swing across faster than while tacking since the sails do not luff during a jibe. It is therefore essential that you control the jibing process. You must know the wind direction as indicated by the tell tales and wind-vane on the boat in order to complete a safe and efficient jibe. Here are the steps:

1. Skipper turns the boat directly downwind.
2. Skipper calls: "Prepare to jibe" or "let's jibe" to alert the crew.
3. Make sure crew are seated or otherwise clear of the boom.
4. Pull the tiller slightly to windward (away from the sail) until the boat is sailing a 5 to 10 degrees by the lee.
5. Skipper grabs all parts of the main sheet at once and throws the mainsail onto the new side. Do not obstruct the sail on its way out onto the new side. The skipper should change sides while throwing the main to the new side.
6. The jib should be brought to the new side as the jibe is completed. *Note: The unused jib sheet (lazy sheet) should be completely released.*



A reach-to-reach jibe can be done essentially as above, but proper timing is essential. If the boat is turned rapidly you must throw the main over and change sides as the wind passes the axis of the boat.

### **Accidental Jibe**

An "accidental jibe" is when the boom swings across unexpectedly. Accidental jibing is very dangerous especially in J/22 where the mainsail is large and powerful. It is best to avoid sailing dead down wind at first to avoid an accidental jibe. A careful helmsman will keep a constant eye on the masthead fly to know where the wind is and avoid accidental jibes. Be careful to not sail "by the lee" where the wind is coming over the same side as the boom. This can lead to an accidental jibe. If you find you are by the lee you can correct this by heading up (push the tiller closer to the mainsail) until the wind is directly behind the boat or slightly off the windward quarter.

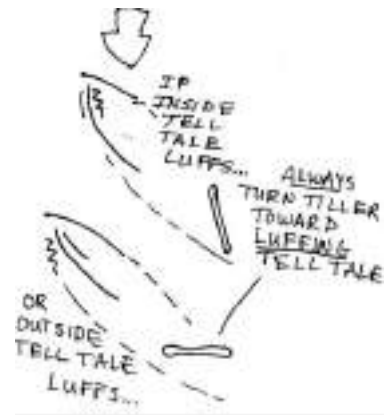
### Sailing Upwind (Close-Hauled or Beating)

When sailing upwind, your sails should be trimmed in tightly. If your sails luff, you must turn away from the wind (fall off) to stop luffing as you have pointed the boat into the No Go Zone. Your goal is to stay pointed as close to the wind as possible without luffing the sails. Instead of waiting for the jib to luff, you can use the telltales to tell you how you are doing and to find the proper course to sail.

#### **Reading Jib Telltales**

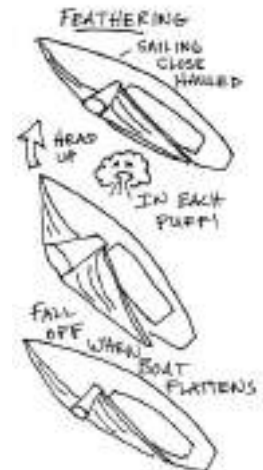
Our jibs have **several pairs** of telltales placed together near the luff of the sail. **Focus on the lowest pair of telltales for now.** When both telltales are streaming aft nicely, the sail is set properly for the boat's course through the water.

1. When the inside telltale flutters or streams up, you have turned too close to the wind (pinching) and need to turn away from the wind to keep the sails full (fall off). Push the tiller toward that telltale **(to windward).**
2. When the outside telltale flutters or streams forward, you can turn closer to the wind (head up). Nudge the tiller toward the sail to head up until the telltales stream straight back.



#### **Feathering**

When sailing a course upwind (beating) in strong wind, you may need to reduce heel. Excessive heel is inefficient; the boat will make more leeway and will have a strong weather helm. With more heel there is also more of the boat's surface touching the water. One way to reduce heel is by turning into the wind slightly (heading up) and then back. This is called "feathering". In this process, the increased wind velocity (from each puff) allows you to steer a course closer to the wind until the boat flattens and you turn away from the wind (fall off) to keep your boat moving. Be careful not to over steer. If you head too close to the wind the boat will lose power and slow down. **Other methods of reducing heel when sailing to windward include moving crew weight to windward, flattening the sails by tightening the backstay, etc. (see below under "Sail Shape") and easing the traveler or mainsheet.**



### Reaching (Close-Reach to Broad Reach)

When reaching you will generally keep your course constant and vary sail trim to sail efficiently. It is best to obey these basic sailing rules:

1. **If your sail is luffing, sheet it in until it stops luffing.**
2. **If your sail is not luffing, ease it out because you may have it too tight. (Refer to rule 1 if it luffs.)**

*Note: To maximize lift, your sail should be at the point where if you let it out at all it would luff.*

#### **Using Telltales on a Reach**

Your telltales will tell you when to sheet in or out (as opposed to altering direction as when



mast will bow forward. The sail is pulled horizontally, making it flatter. *Note: On a J/22, you can tighten the backstay sufficiently by having one person pull the backstay adjustment line with one or both hands and secure the line to the cleat. Never use a winch to tighten the backstay!*

### **Depowering the Sails To Keep the Boat Flat in Stronger Winds**

Remember that you can also use feathering and ease your **traveler or mainsheet (with the vang on tight)** to depower the mainsail in gusts of strong wind in case you are still overpowered even after flattening the sail. If strong winds persist, you should consider putting a reef in your mainsail or taking down your jib. The J/22 sails very well with mainsail alone in moderate to strong winds.



### **Boom Vang Control**

When sailing off the wind or when easing the mainsheet while close hauled the vang will control the leech of the sail and allow you to prevent the top of the sail from twisting away from the wind (to leeward), spilling power from the upper portion of the sail.

- Tension the vang to keep the top of the main from twisting to leeward. A general rule is to try to keep the batons roughly parallel to the boom.

*Note: Too much tension will cause the leech of the sail to hook to windward, thereby over trimming the top of the sail. This will stall out the sail. Note: When sailing to windward the mainsheet and backstay control most of the tension in the leech and the vang is not as important. An exception to this is when you ease the mainsheet in a strong wind; then the vang should be tight to prevent the mainsail from becoming fuller when the sheet is eased.*

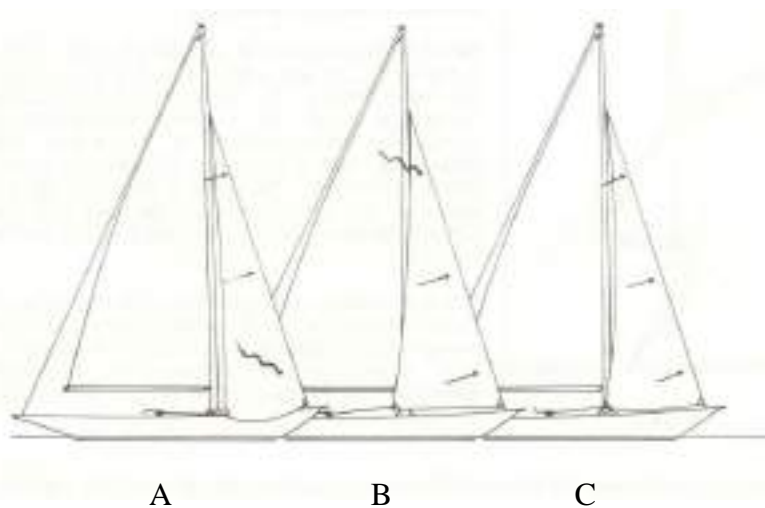
### **Jib Fairleads**

#### **Adjusting Jib Fairleads**

You will notice that the jib fairleads are adjustable along tracks on the deck. The fore-and-aft placement of the fairlead is critical to the shape of the jib and consequently the speed of the boat. The main goals in adjusting the jib leads are to cause the jib to luff evenly, from head to tack, as you head up into the wind and to keep the slot between the main and jib open sufficiently.

**A- Too Far Forward:** If your jib lead is too far forward, the leech is pulled down too tight but the foot is not pulled aft enough. This will cause the sail to first luff near the bottom.

**B- Too Far Back:** Similarly, if the lead is too far aft, the foot of the sail will be too tight, but the leech will be loose up high, causing the top of

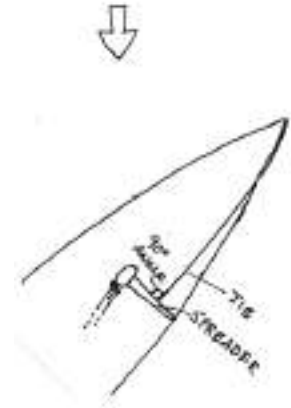


the sail to luff first.

**C- Just Right:** Here is how the telltales fly when the fairlead is properly adjusted.

### The Slot:

The area between the mainsail and jib is called the slot. When sails are adjusted incorrectly, or are cut too flat or too full by the sail maker, the slot may be less than ideal. When the slot is too closed (not enough distance between the sails) the boat may heel excessively, or the mainsail may backwind. When the slot is too open (too much distance between the sails), the sails may not develop enough lift to windward, and the boat will not point well or sail fast to windward. A good rule of thumb is to keep the leech edge of the jib at 90 degrees to the spreader when the sail is pulled in all the way. If it is pulled in too tight, that will not be a 90-degree angle.

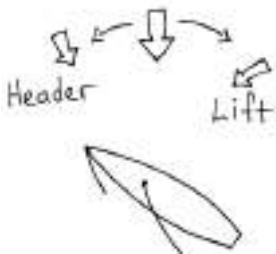


### Understanding the Wind

In order to maintain speed and keep sails properly trimmed, you need to understand the wind. Wind strength and direction can change so you will need to respond appropriately. You should understand the terms used below to describe the wind so that you can communicate easily with other sailors to sail the boat properly.

#### Puffs and Lulls

A puff is a temporary increase in wind velocity marked often by a dark patch of water. A lull is a temporary loss of wind speed in which you may see a smooth patch of water.



#### Wind Shifts

##### **Header**

A header is a wind shift toward the bow of your boat. If close hauled you will have to fall off (turn away from wind).

##### **Lift**

A lift is a wind shift away from your bow, allowing you to head up (turn closer into the wind).

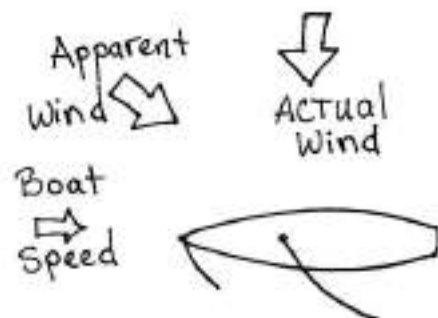
#### True Wind

The "true wind" is the actual wind blowing. You will feel this at a fixed point, such as standing on the docks.

#### Apparent Wind (the wind you sail in)

Apparent wind is the combination of the true wind and the wind created by the boat moving forward. If your speed or the true wind speed changes, the apparent wind will not only change in speed, but also in direction.

You may notice that apparent wind is less when traveling downwind because you are moving the same direction as the wind. When you are not going directly away from the wind, your apparent wind will





be somewhere between true wind and where your boat is pointed.

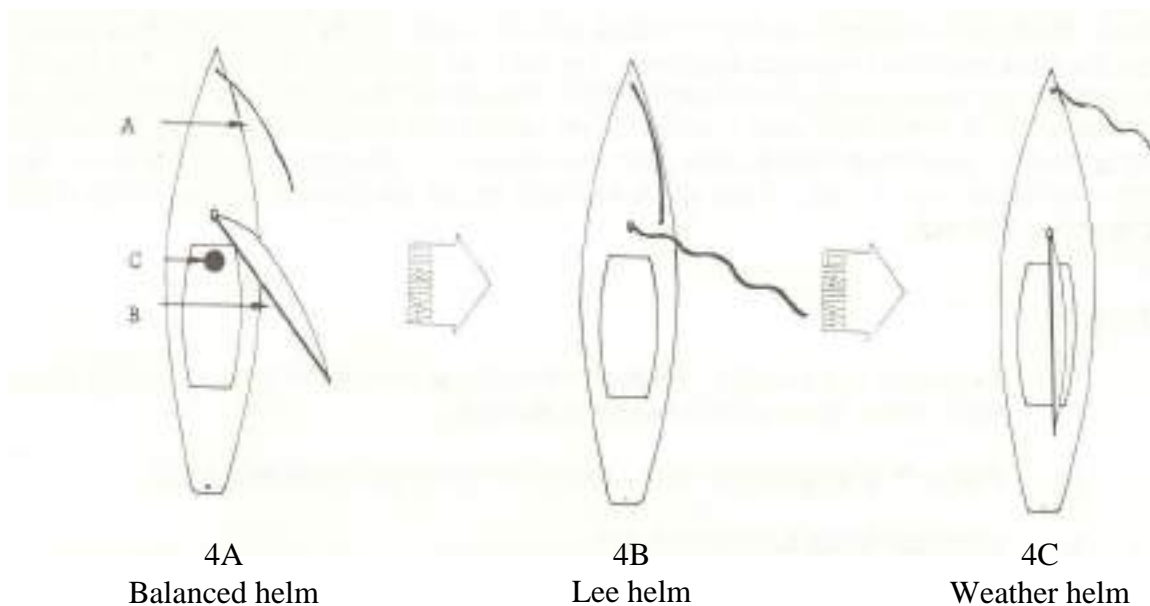
### **Weather and Lee Helm**

It is important to understand the forces that act on your boat to steer it through the water. You know about the tiller, but there are other forces as well such as whether your boat is heeled over and the combination of forces from the jib and mainsail. **Excessive heel will tend to make the boat turn away from the direction of heel.** Tightening the jib will turn the boat away from the wind and tightening the mainsail will head the boat up into the wind.

### **Balancing the Boat**

If you look at a profile of a boat you can find the center of its sail area, or center of effort (CE) and the center of its underwater surface, called the center of lateral resistance (CLR). When the boat is designed so that the CE and CLR are approximately in line, the boat will be well balanced and easy to steer in most conditions. It is helpful to think of the CLR as the point around which the hull will pivot when there is force against the bow or stern.

If the CE is aft of the CLR, the boat will have a tendency to head up when the force of the wind hits the boat. This is called **weather helm**. Usually a designer will give a boat very slight weather helm so that the skipper can have an easier time getting the boat to sail to windward. Also, if the skipper lets go of the tiller, the boat will head up and luff rather than fall off and possibly heel over more, or even jibe. The opposite is **lee helm**.



Let's use an example: The force at "A" is the wind pushing the jib; the force at "B" is the wind acting on the mainsail. **The vector sum of these two forces (A + B)** is called the "center of effort". The fulcrum or pivot point **of the hull with its keel and rudder in the water, "C",** is the center of lateral resistance (CLR)

### **Balanced Helm**

When both main and jib are trimmed correctly and the boat is not heeling excessively the center of effort coincides with the center of lateral resistance giving a neutral or balanced helm. If the helmsman were to let go of the tiller (do not try this) the boat would continue straight ahead.

### **Lee Helm**

When the jib is pulled in while the mainsail is luffing as in Figure 4B, the force is being applied ahead of the pivot point (CLR) pushing the bow away from the wind.

### **Weather Helm**

In Figure 4C, the mainsail is trimmed properly, but the jib is luffing, pushing the bow toward the wind as illustrated. This condition is called "weather helm" since the boat wants to point into the wind, or to "weather".

## **Reefing**

UCI's J/22 mainsails are equipped with quick reefing rigging, to allow the sail area to be reduced for stronger winds. With full sails, the J/22 reaches its maximum speed in about 8 knots of wind. More wind causes greater heeling, excess strain and makes the boat difficult to control. At this point the boats will sail just as quickly with less sail area, be easier to handle and more comfortable. If the wind is blowing more than 12 knots consider reefing at the dock or sailing without the jib. To reef the mainsail use the blue reefing line, which is led through a grommet in the mainsail leach approximately 4 feet up from the foot and is led forward from the clew through the boom. It is cleated at the front of the boom with a jamb cleat mounted in the boom and controlled by a lever. One can most easily reef while sailing close hauled or on a close reach.

### **Reefing Procedure**

1. Make sure you have plenty of room to reef – checking traffic & obstacles.
2. Have a sail tie ready.
3. Luff main and sail on jib alone.
4. Release Cunningham and boom vang. Ease the main, while holding the boom up.
5. Lower main halyard until the second grommet at the luff is about 6 inches above the boom and can be hooked onto the Cunningham.
6. Cleat the main halyard..
7. Tighten reefing line until the reefing clew grommet meets the boom. Secure reef line with the jamb cleat, by pushing the lever forward. The lever is located on the bottom edge of the boom near the mast, just behind where the blue reef line exits the boom.
8. Roll or fold up the excess sail and tie it loosely with a sail ties through the intermediate reef points in the sail located between the reefing tack and clew.

### **Removing or "Shaking out" a Reef**

1. While sailing close hauled, take out the intermediate reef points first.
2. Luff the main. Release the Cunningham and ease the boom vang.
3. Release the blue reefing line, while holding the boom up.
4. Raise the mainsail and re-cleat the main halyard.
5. Place the Cunningham hook in the grommet 6 inches above the tack of the mainsail.

6. Tighten the Cunningham, outhaul & boom vang.
7. Continue sailing.

## Necessary Skills and Knowledge

### Right of Way Rules

The most important rule for all boaters is to **avoid a collision**. This requires an alert skipper who is aware of traffic and knowledgeable of the rules. The purpose of all “right of way” rules is to avoid collisions. You are required to **maintain a proper lookout**. This is especially important in a busy harbor. Keep in mind that not all your fellow boaters will know the rules so you must never force your right of way. **Common sense and courtesy** are essential when sailing. All of our sails identify you as a “UCI” sailor so please protect our reputation in the harbor.

All boats are required to maintain a **safe speed**. In Newport Harbor the stated speed limit is 5 miles per hour for power boats.

Listed below are the basic rules used to avoid collisions. There are also specific rules and policies for each harbor or body of water, so you need to learn those as well. When sailing in Newport Harbor, **the Inland Right of Way Rules** apply. These are stated in a **simplified** form below. There are separate rules for racing and for areas outside the harbor (i.e. international waters) which are mostly consistent with the rules we list here. There are some special situations to be aware of in Newport.

When boats are moving close or may collide you need to determine which boat is the “stand on: and which is the “give way”. **Stand on Vessel** maintains its course and speed and the **give-way vessel** alters course. **This means that you *never* have the right of way; you are just the boat that is the “stand on vessel”.**

There are rules that apply between two sailboats, between power boats, between a sailboat and power boats and between manual propelled boats. There are also rules that apply when there are commercial boats and large boats in confined waterways. Newport Harbor can be considered a confined waterway or a narrow channel for many boats so please read that section carefully.

**NOTE: When you are making a course change to avoid a boat, make it clear or change course soon enough that the other boat can understand your intentions.**

Before you get too far in the rules remember you **MUST avoid all collisions!**

### **Overtaking boats**

A boat approaching another boat from the stern (behind) and overtaking shall keep clear of the vessel being overtaken. Therefore the overtaking boat is the give way boat. The boat being overtaken shall hold course and speed. **This rule applies equally to all boats**, including two powerboats, two sailboats, a sailboat overtaking a powerboat and vice versa. The overtaking

boat shall pass on either side, as long as there is room.

### **Rowing or human powered boats**

All vessels shall keep clear of man-powered vessels (i.e. canoes, SUP, rowboats, kayaks, and swimmers). In Newport Harbor there are lots of rowing shells. These can move very fast and most of the people in the boat cannot see you since they often face backwards. Rowing shells are not able to stop quickly or change course drastically. Please be aware of these boats and make adjustments to avoid them. Skippers of smaller kayaks, SUP and row boats will often not be very skilled or know the rules, so anticipate their course if you can.

**NOTE: J/22's are small and easily maneuvered boats – please anticipate where other boats are headed and adjust your course to avoid collisions.**

### **Operating in a narrow channel**

Most of Newport Harbor is considered a narrow channel or confined waterway. The rule states that boats less than 66 ft can not **impede the passage of large boats in confined waterways** or where the depth of water limits the part of the harbor they can maneuver in. Large powerboats may have limited abilities to maneuver at the low speed (5 mph) required in Newport Harbor.

Large powerboats and some larger sailboats must stay in certain parts of the harbor where it is deep enough for them to maneuver. At the end of the channel where we sail there are docks for several of the large ‘party’ boats. Be aware of their limited maneuverability and stay out of their way.

Traffic patterns in narrow channels are usually arranged so that **boats must keep to the right as much as possible**. In Newport, especially in our channel, which is designated as the main navigational channel in the Harbor, powerboats or other boats steering a straight course *should* follow this pattern. As a Capri sailor, you do not cross in front of boats following this pattern. In particular, avoid sailing in front of the blue and white Pavilion tour boats as they often will not be aware of you.

**The dredging barges in Newport:** Often there are two or more large barges and their equipment operating in the harbor. They have the right of way over you and everyone else. YOU MUST STAY completely away from them. **They can not stop or change course for you.** They move quite fast and the water behind them is very turbulent as well. You will not hear them as they make very little sound, so KEEP A CONSTANT LOOK OUT for their movements.

### **Sea Room/Obstruction**

The skipper of a vessel that needs to alter course because it is sailing around an obstruction may sometimes yell “sea room” or “obstruction” in which case you should alter course and give the boat room to sail around the obstruction. An obstruction could be anything that hampers a boat's course such as shallow water, the sea wall, docks, etc. This often applies between two sailboats as they tack up a channel. Anticipate circumstances where you will need to give “room” and alter your course early.

### Sailboats and powerboats

**Motor boats shall keep out of the way of sailing vessels.** But remember there are modifications to this rule as stated above. It is important to know that powerboats do not have brakes and often cannot stop quickly. Sailboats under power are considered powerboats. Remember not to cut in front of a powerboat, especially if they are near the side of the channel as there is little room to maneuver. Also, many boaters do not know the right of way rules, especially those renting the electric “Duffy” boats. The rental site is near the UCI Sailbase and often the Duffy boats come down the channel very close to our docks. Moreover, Duffy boats are heavy and can't turn or stop quickly.

### Fleets of Racing Sailboats

Please give sailboats that are racing a wide berth and right of way. They often take their racing seriously so they will appreciate it if you stay out of their way and off their wind. Racing sailboats are often easily recognized when they are all lined up and headed in the same direction toward a buoy.

### Rules between Sailboats

These rules should in general be used between our boats in classes, and other boats of similar size. The following right of way rules apply between two or more sailboats. You need to first know the terms **Starboard tack and Port tack** and **Windward and Leeward** in order to use the rules.

A boat on **Starboard tack**, has the boom on the port side (left), and wind coming over the starboard or right side. A boat on **Port tack** has the boom on the starboard side, and the wind coming over the port side.

A **leeward boat** is the boat further away from the wind (between two boats) and the **windward boat**, is the boat closer to the wind.

Now to use the rules you must be able to determine what **tack** you are on. Remember you are either on the **same tack as a boat, or on the opposite tack**. First determine what tack you are on, then what tack the other boat is on. Then you can decide which of the basic rules will apply.

1. When two sailboats approach on **opposite tacks**, the boat, which has the wind on the port side, or a **port tack boat** shall keep clear of the starboard tack boat.
2. When both boats have the wind on the **same side (are on the same tack)** the boat to **windward** shall keep out of the way of the boat that is to leeward.
3. If the port tack boat sees a vessel to windward and cannot determine the tack, it shall keep clear.

It can be helpful to nicely call out your position like “starboard tack” to let the other vessel

know you expect it to give way. The port tack boat, for example, may respond with “hold your course”.

### Note on the Balboa Ferry

You should always avoid the ferries. They have to be able to cross the channel, and have limited maneuverability and limited areas in which they can alter their course. It would be impossible for them to operate if other boaters did not keep clear. There are 2 or 3 ferries operating at a time. As you approach, identify where they are, and plan your passage. Do not cut in front or try to squeeze by them along the docks. It is best to pass behind them and it is easy to do if you plan ahead. You can always just tack away for a few minutes and then pass when it is safe.

The ferries in Newport are square with two wheelhouses so the captain can face both ways. To determine which direction the ferry is headed you need to consider the direction the cars are facing on the ferry. Aim to pass on the side near the car trunks.

Further information on right of way and safety rules as well as sounds, lights and channel markings, may be found in the “ABC of the California Boating Law”. This is a free publication provided by the California Department of Boats and Waterways and is available at the Harbor Patrol and on the Internet at [www.dbw.co.gov](http://www.dbw.co.gov) . Your instructor can also provide copies of this booklet.

These are just the basics. If you ever sail in a harbor with commercial traffic such as San Diego, Long Beach or the Port of LA, you will need to learn more and know the specific rules for that area.

## **Anchoring**

Anchoring can be used when you have an emergency such as a breakdown or medical emergency. If you need to anchor for an emergency, you will need to be able to do it fast and efficiently. Understanding the theory and practice will make anchoring easier and safer. Be sure you know how you are going to get back aboard when anchoring.

Our J/22's are equipped with Danforth anchors, chain and about 100 feet of line. This type of anchor holds well, in sand or mud, but not as well in kelp or rocks.

### **Anchor Theory**

The anchor we use on the J/22 has been carefully optimized to be a lightweight, effective system. The eight-pound model on the UCI J/22 has a maximum holding power of over 3,000 pounds in hard sand. In order to achieve this holding power, the pull on the anchor line should be at an angle of not more than 8 degrees to the bottom. This brings us to a discussion of scope since it is not the weight of the anchor that holds the boat. Instead, the design of the anchor along with the scope used in setting the anchor and to a much lesser extent the weight of the

anchor combine to hold a boat in place when anchored.

### Scope

Scope is the ratio between the depth of the water and the amount of anchor rode used (the anchor chain and line together are called the "rode"). If the water is 10 feet deep, and your anchor rode is 20 feet long, your scope is 2 to 1. With 30 feet of rode it would be 3 and 1. With no sag in the rode the anchor reaches its ideal angle of 8 degrees with a scope of 7 to 1. This gives the best holding power. For general anchoring in sheltered conditions, a **minimum** scope of 3 to 1 should be used.

### Rode

Like the anchor, the rodes on our boats are chosen for maximum efficiency. The line is nylon, with a breaking strength of 4,000 pounds. Nylon is used because it stretches when a load is put on it (up to 30% of its original length) before it breaks. This acts as a shock absorber for the anchor as the boat surges in waves. **Don't use the spinnaker sheet or other halyards or sheets since they are made of dacron which stretches very little and therefore are not suitable.**

The chain serves two purposes. First, it prevents the rode from chafing against rocks or broken glass on the bottom. Second, the weight of the chain attached to the anchor lowers the angle of pull in the same way more scope does.

### Preparing to Anchor

Before dropping the anchor:

1. Examine the chain and line checking that the shackles holding them together and to the anchor are tight and wrapped with wire.
2. The line should be flaked to ensure it will payout smoothly.
3. Tie the end of the line around the base of the mast with a bowline.

### Finding your Spot

Setting the anchor in a crowded anchorage is a maneuver that requires good boat handling, good crew work, and planning ahead. Any boats that are already anchored have right of way over you, so you must plan to end up anchored in a position that will be out of their way. Having picked a spot of open water, you should note how the boats are lying to their anchors. Usually a boat will lie downwind of its anchors, but sometimes a strong current can change this. Assuming the boats are lying into the wind, you will want to drop your anchor far enough upwind of your spot that, as you payout your anchor line, you will drift downwind to it. How far upwind to go depends mainly on how deep the water is (see scope), but a good rule of thumb in Newport Harbor would be 60 feet.

### Dropping the Anchor

In a powerboat (or sailboat under power), dropping anchor is relatively easy. You would simply head the boat into the wind. Stop the boat upwind of your spot. Tell the crew to lower (not throw) the anchor and put the engine in reverse until you have backed up to your spot, and then cleat the line.

In the J/22, it is a little more complex. This is where good crew work and boat handling pays off. There are two basic techniques that will work.

### Method 1

This is similar to the powerboat method.

1. Stop the boat over the point where you wish to drop the anchor by luffing the sail. *Note: This is the same way you stop in a man overboard drill, or stopping at a mark.*
2. Very quickly drop both sails, starting with the jib. If you have done this properly, the boat should be dead in the water, with the sails down, about 60 feet upwind of where you want to end up anchored.
3. As the boat starts to drift downwind, lower the anchor over the bow, slowly enough that the chain does not pile up over the anchor, but rather stretches out along the bottom.
4. When you have drifted to your spot, cleat the line at the bow. If the anchor is holding, the bow of the boat should be pointing into the wind with the proper amount of line out and some tension on the line.

### Method 2

This is more like docking. With this method you retain steerage way and can maneuver somewhat instead of drifting at the mercy of the wind. Pick your spot as before, but as the boat luffs to slow down, quickly drop the mainsail before the boat stops.

1. Turn downwind and while coasting slowly downwind, lower the jib and the anchor.
2. The anchor in this case may be lowered from the bow or the stern, so long as it is tied at the bow. Be sure that the anchor line is led outside the shrouds.
3. As the anchor line goes taut, turn the tiller so that the boat slows and turns around the anchor to lie pointing into the wind.

Now that you have just set the anchor and fortunately you ended up more or less where you wanted to be, make sure your anchor is holding. Take some bearings on shore objects and see if they change. Watch your position relative to other boats around you. Remember, if the wind changes direction, you could find yourself swinging into another boat. **Do not leave the boat while anchored.**

### Raising the Anchor

Usually, when anchored by the bow, a boat will point into the wind. This makes leaving easy.

1. Raise the main first, making sure that the sheet is uncleated and the boom is free to swing from side-to-side as the sail luffs.
2. Pull the boat up to the anchor by pulling in the anchor line.



3. Once directly over the anchor, a steady upward pull will usually break the anchor free of the mud.
4. Drag the anchor in the water being careful to keep the flukes pointed away from the hull. Get as much mud as possible off of the anchor before bringing it into the boat.
5. Once you have returned to the dock, rinse the anchor, deck and jib of any mud with the hose. Mud, especially from the bay, sticks and will stain the sails

## **Man Overboard (MOB)**

Wearing personal flotation devices (PFD's) is the single most important thing you can do for safety when out on the water. Everyone should wear a PFD in rough weather conditions or if leaving the cockpit. It is difficult to stay afloat with wet clothing and many times a person that is knocked overboard may be rendered unconscious. Wearing a PFD is mandatory when sailing in the ocean and at all times for children under 13 years of age.

It is best to avoid the situation of losing someone overboard in the first place by being careful, especially when sitting or standing outside the cockpit area. If someone does fall overboard, the next best way to succeed in recovering the victim is to have practiced MOB drills and be sure someone can handle the boat if the skipper goes overboard.

### **The Drill**

It is important to stay in the immediate area and stop the boat quickly. A MOB drill can be practiced with a throw-able cushion (Type IV Personal Flotation Device). *Note: In a real man overboard situation it is important to quickly toss a throw-able cushion to the victim, as well. So always have it accessible.*

- Assign one person to watch the man overboard and point to him/her throughout the entire maneuver. This is especially important in the ocean, where swells and choppy seas may obscure your sight of the victim.
- React quickly! You should get back to the victim and stop the boat with the cockpit next to the person in the water within 30 seconds

### **If you are close hauled or reaching**

1. Bear off and sail downwind then jibe and reach a point downwind of the MOB.
2. Luff your sails and turn into the wind to slow down and pick up victim with sails luffing.
3. Plan your approach so that you stop at the MOB with the J/22 cockpit next to them.
4. Heel the boat towards the MOB so you can get their chest on board more easily. Help the person get their legs on board and then bring them into the cockpit or cabin to warm up. *Note: It may be difficult to pull the victim aboard. You can use a cleated jib sheet to form a step if needed.*

**If you are running**

1. Head up and then tack until you are downwind of the MOB. *Note: If you have the spinnaker up, head directly into the wind to stop. Release sheets and let the halyard down.*
2. Plan your approach so that you stop at the MOB with the J/22 cockpit next to them.
3. Heel the boat towards the MOB so you can get their chest on board more easily. Help the person get their legs on board and then bring them into the cockpit or cabin to warm up. *Note: It may be difficult to pull the victim aboard. You can use a cleated jib sheet to form a step if needed.*

**If the skipper is the MOB**

1. Instruct your crew ahead of time and again if you should fall overboard to do the following.
2. Uncleat and free the main sheet and both jib sheets
3. Push the tiller all the way over to either side and hold it there.
4. Remain seated so that the boom does not hit them when the boat jibes
5. The boat will circle in a short radius so that you, the skipper, can swim to the boat and get back in with the help of your crew.

**Aids To Navigation (see ABC's of Boating at <http://www.dbw.ca.gov/pubs/ABC/>)****Channel Markings**

Harbor entrances, channels, and other navigable waterways are marked with a uniform system of buoys, lights and other markings. This system employs a simple arrangement of colors, shapes, numbers and light characteristics. These show the side on which the marker should be passed when proceeding in a given direction, and where the safe channels are located.

Channels are marked with red cone-shaped (nun) buoys on one side and black or green can buoys on the other. Buoys may be replaced by day marks: square green markers may replace buoys and red triangular markers may replace the red buoys. Each color also has corresponding lights and numbers (green = odd, red = even). The numbers increase as you move upstream, or into a harbor. Buoys or shapes usually come in pairs marking the corresponding sides of the channel. An easy rule to remember is "red-right-returning". In other words, when entering the harbor, the red, cone-shaped buoys will be on your right or starboard side. The entrance to Newport Harbor is marked like all harbors with this system. The red buoys found on the east (or south) side of the jetty are particularly important since they mark the boundary of the navigable water, as the area between the buoys and the jetty often fills in with silt. Stay towards the channel side of these buoys. Refer to Appendix A.

Flashing lights with specific intervals are used to identify aids to navigation. They are easy to sight in the fog and against the background of other shore lights. The green flashing light at Newport, found on the west jetty, has a 4 second interval. The foghorn is also on the west jetty; it has a 3 second blast every 30 seconds. There is a red light on the east jetty with a 4 second interval. The bell buoy just outside the channel entrance has a green light with a 4 second interval.

There are several other markers and buoys that are found in channels. In the central basin of Newport Harbor there are four yellow buoys, which mark the designated anchorage area. Additionally, throughout the harbor there are local racing marks. These are the red and white striped spar buoys. Special marker buoys, usually orange and white, specify other restrictions or dangers including shoals and rocks, or speed limits, etc. Check the ABC's of Boating or other references for more information. ABC's of Boating can be obtained free at Harbor Patrol or the Coast Guard Office.

## Weather

The J/22 was designed for racing and day sailing in sheltered waters. It was **not** designed for heavy weather offshore sailing since the J/22 has low freeboard, and no lifelines.

A prudent skipper will always check the weather forecasts and sailing conditions before going out sailing. *Note: You can call for recorded weather at (949) 675-0503 or listen to the NOAA radio weather broadcast on 162.55 MH (VHF radio).*

- If small craft advisories are posted for winds exceeding 25 knots, but the observed wind is much less, the instructor may decide to take the boats out sailing while reefed.
- If gale warnings or storm warnings are posted, no boats leave the docks.
- If at any time you are sailing and the winds increase to 18 knots or more, you should take measures to reduce the strain on the boat and return to the dock.

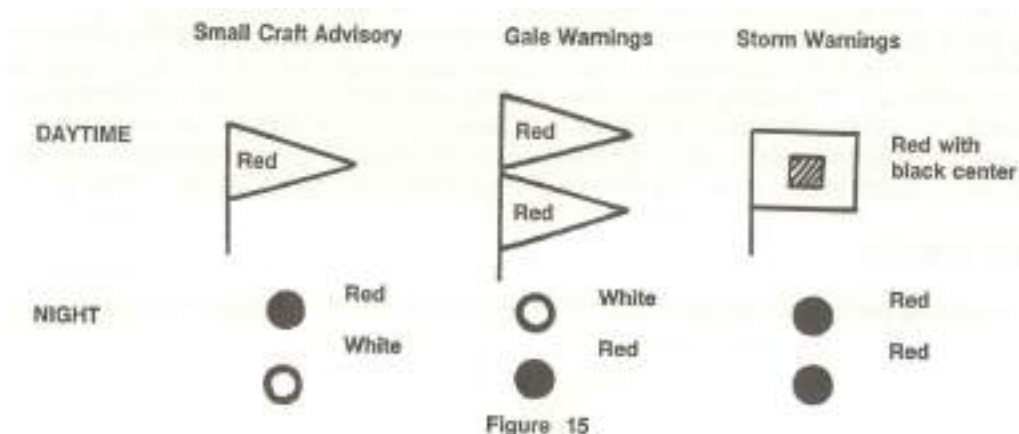
## Storm Warnings

The weather service has three classes of warnings for heavy weather conditions.

1. Small craft (boats 65 feet and under) advisories are forecasts of winds exceeding 25 knots, hazardous sea conditions, or both.
2. Gale warnings are forecasts of winds exceeding 35 knots.
3. Storm warnings are forecasts of winds exceeding 55 knots.

In Newport, these signals will be displayed at the Harbor Patrol office near the harbor entrance. The signals are:

## Storm Advisories



Newport is known for light to moderate winds, but there are exceptions. Usually, our wind is a daytime sea breeze (blowing from the sea to the land).

### **Onshore Wind**

When the land heats up, the air mass above it rises, thereby sucking in cooler air from the ocean. The sea breeze usually starts in the late morning, blowing throughout the day, then dies as the sun sets. This wind is weakest in winter when the land does not heat up as much, and strongest in late summer when it can occasionally reach 25 knots. This wind will generally be stronger towards Dana Point and Long Beach and further offshore than here at Newport. This sea breeze is almost always present, but it can be modified, blocked or reinforced by other wind systems.

Most of our strong winds are caused by pressure systems. Low-pressure systems are storm centers, which can generate southerly or westerly wind systems, and can exceed 40 knots during the winter months. High pressure inland can generate an easterly Santa Ana condition (especially in the fall) with winds exceeding 60 knots.

Fog can be a problem in the early winter and early summer when it is often very thick. The fog usually forms offshore and then blows in slowly to blanket the coast. If you are overtaken by fog, it is usually your own fault because you could have seen it coming if you were watching out to sea.

The following is a seasonal breakdown of the kinds of weather you can expect in the Newport area.

### **July, August, September**

Winds will generally be light and variable at night. In the early morning hours the breeze will be southeasterly. Slowly clocking towards the west and building in the afternoons, it may reach 20-25 knots on occasion. If the winds clock all the way to the west, they will usually persist well after sunset, especially offshore. About half the time, however, the winds will hold south of west and remain less than 10 knots. This wind will usually die by sunset. Night and morning low clouds are likely with this southwesterly wind pattern. Occasionally, a tropical storm off the Mexican coast will move far enough north to affect our local weather. Warm humid weather, with higher and thicker clouds than normal, indicates this condition. Commonly, the storm itself will dissipate before reaching our latitude, leaving only heavy surf on our south facing beaches. Very rarely will the storm itself reach us with rain and high winds.

### **October, November, December**

Wind patterns will be similar to summer, but wind strengths will be much lighter. Fog may form offshore and move onshore with the light sea breezes. Storm fronts will begin to reach down the coast and will probably bring some rain by the middle of the period. Santa Ana winds will occur, usually just after the passage of a storm front. Daytime winds will be lightest in December when Santa Ana's and storms are not present.

### **January, February, March**

This is usually the storm season in Southern California. Rain, with high winds, will occur for 1 to 2 days at a time, with usually 2-4 days clearing before the next storm. Please refer to the section on Storms. High pressure may build for a time to block these storms for periods of days or weeks. Wind under the high will be a southwest to west sea breeze similar to late summer but not as strong, and usually dying by sunset. Santa Ana's will be less common than in the fall. Fog or low clouds will occur, but will probably not be the "pea soup" type of fog seen in the late fall. Nighttime winds on cold, clear nights will reach 10 knots from the east on occasion.

### **April, May, June**

Usually by spring, storm systems are becoming weak, but one or two can still appear early in the period. Between storms, the air mass over the L.A. basin will be stagnant, allowing an inversion to form, trapping pollution and dust particles beneath it. These particles provide a platform for water vapor to condense on as the air mass cools at night. Low clouds (3000 feet or less) will then form, causing overcast conditions the next day. The heat of the sun will slowly disperse the clouds in the daytime, but this will be difficult if they are thick since the white clouds reflect most of the heat away. There will probably be several days (or weeks) when the clouds remain over the coast day and night, with daytime clearing inland. Winds under these conditions will usually be less than 10 knots, starting from the south around 10 AM and clocking toward the west, but usually staying southwest and dying before sunset.

### **Storms**

The North Pacific Ocean breeds a near endless succession of low pressure storms which then drift eastward across the ocean, picking up moisture until they reach the North American continent. In the summertime, a large high-pressure area remains semi-stationary roughly 500 miles west of San Francisco. This high-pressure area blocks the storms from Southern California. During the late fall, this "Pacific high" drifts southward, allowing Pacific storms to move farther south, eventually reaching us in southern California. Even so, we are at the extreme lower edge of these storms and receive much less rain than 300-500 miles north of us in the bay area. Three hundred miles further south, Baja California receives virtually no rain from these storms and so is a desert. Because we are at the edge, it is very difficult for forecasters to predict if a given storm will reach us or dissipate first.

Usually the storm center itself will pass well north of us with only the trailing cold front affecting our weather. Twelve to 24 hours before the front reaches us, high, wispy "mare's tails" or cirrus clouds will appear, gradually thickening and perhaps producing a ring around the sun or moon. Within several hours these cirrus clouds will form a sheet of high clouds called a cirrostratus layer. This layer of clouds will then thicken and lower, gradually obscuring the sun. The wind will back to the south or southeast, and build. If the storm is vigorous, these pre-frontal winds can exceed 30 knots in Newport, but they are normally much less.

As the front gets closer, the clouds will get lower and darker toward the west and rain will begin. These rain clouds are called nimbo stratus clouds (nimbus means dark and stratus means a sheet like cloud). Rain will fall steadily for 6 to 12 hours until the front passes, then will turn to showers with broken clouds visible in between. The wind will shift, sometimes abruptly, to the

west or northwest and build as the front moves on. These "clearing westerlies" are usually stronger than the pre-frontal southerlies, reaching 40 knots or more.

The sun will now appear with white puffy clouds called cumulus clouds (cumulus means column), which will become fewer as the front moves farther away.

The above narration is an ideal case. Most of our cold fronts behave like this, but there are variations. Sometimes the storm center will stall offshore, sending band after band of clouds with rain, followed by brief clearing, with more rain following. One clue that this is happening will be that the wind does not shift to the west, but remains southerly. Sometimes several storms will hit back to back, with little or no clearing in between fronts, bringing off and on rain for 4 or 5 days at a time.

### **Post-Frontal Squalls**

The air mass behind the cold front is usually unstable and can sometimes produce squalls and thunderstorms even after the skies have cleared. These post-frontal squalls will be isolated and widely scattered, but if they do hit, they can pack violent winds (exceeding 60 knots), heavy rain or hail, and sometimes-even waterspouts. If you go sailing in the clearing sunny weather behind the front, be sure to keep a watch out toward the west for a large, dark cloud with the darkness beneath it extending all the way to the surface. This is a cumulonimbus cloud, and if it is heading toward you, head for the dock and/or be ready to luff or lower your sails quickly. At the very least you are going to get soaked.

These squalls usually pass within 6 hours of the westerly wind shift that marks the cold front's passage, so consider postponing your sail until after then. Although the weather may clear during the first 12-24 hours after a storm, it is not advisable to go out sailing during this time. During this condition, the unpredictable nature of the air mass and heavy winds make sailing J/22 dangerous.

### **Santa Ana's**

Santa Ana winds can occur any time of the year, but are most prevalent from September through February. This condition results from a local high-pressure area that forms inland over Nevada or Arizona, forcing the surface air to flow over the Mojave desert and up the backside of our coastal mountains. As the air rises, it loses all its moisture, and as it travels down this side of the mountains to the L.A. basin, it is heated by compression. It reaches us as a strong, dry; warm east to northeast wind, sometimes extending offshore to the Channel Islands. Normally it is stopped at the coast by the westerly sea breeze. Often, the Santa Ana and the sea breeze will fight it out at Newport with the easterly wind winning for a while, then the westerly, producing abrupt wind shifts.

Santa Ana's are a dangerous wind for several reasons. First, the weather is usually warm and sunny, so people tend to think it would be good sailing weather. Second, at the sailing base the cliffs block most of the wind, so the wind speed meter tells a false tale. It can be (and usually is) dead calm at the dock, but blowing 40 knots on the other side of the bay. Third, the winds are

extremely shifty and can cause violent, unintentional jibes and tacks. Fourth, the winds can be very gusty, going from near zero to as much as 60 knots in seconds. Lastly, the winds are blowing from a different direction than normal, so the areas people tend to think of as sheltered and safe are suddenly completely the opposite (good examples of this are the normally sheltered coves along the "front side" of Catalina).

Fortunately, the onset of Santa Ana's can usually be predicted by the weather service. If the forecast calls for east to northeast winds, especially below the canyons, this means a Santa Ana. Often, if a fast moving front passes through, with rapid clearing behind it, it could mean a high is forming and will be followed by a Santa Ana. Once formed, a Santa Ana condition can last as long as a week. However, the strongest winds will usually occur at the onset and rarely last more than 24 hours.

As a skipper, you should be extremely careful about sailing when a Santa Ana condition exists. Your instructor will monitor the weather before each class and will make the final decision to sail or not.

## **EMERGENCY SITUATIONS**

Program the Newport Beach Harbor Patrol phone number **(949) 723-1002** into your phone for use in an emergency. You may also call 911 and ask that your call be directed to the Newport Beach Harbor Patrol.

### **Running Aground**

Before you venture out into a harbor or the ocean, it is always important to look at a chart and note hazards. Also, watch the local traffic, and don't go inside areas others are avoiding. Keep a good distance from rocks, shores, etc.

It is easy to avoid the shallow areas of Newport Harbor, especially if you give lots of clearance to beaches, rocks and docks. However, should you run aground, the first thing to do is luff your sails and unless you free yourself, immediately drop the mainsail, especially when on a broad reach or running. In most cases, especially on a soft bottom, simply heel the boat **as much as possible** and the boat will free itself. You may also try to backwind or change tacks besides shifting your weight.

If you are still unable to free yourself, call the Newport Beach Harbor Patrol at (949) 723-1002 or call 911 and ask that your call be directed to the Newport Beach Harbor Patrol. **Continue to do everything you can to keep people and boat safe while you wait for assistance.** In class, your instructor may be able to help by giving you a tow. Have your bow or stern line ready to toss to the instructor. If you are aground near the surf or rocks, quick action is necessary to save the boat. Use one of the signal flares as a distress signal. Anchor so that you do not wash further ashore.

### **Towing**

At times you may want or require a tow. Use nylon line (i.e., the dock lines or anchor line) since it will stretch and act as a shock absorber. If you will be heaving the line to another boat, be

sure it is long enough to reach the other boat. It may be necessary to tie your bow and stern lines together to make a longer towline. Tie the towline around the mast with a bowline and lead it through one of the bow pad-eyes for all tows in the ocean and multi-boat tows. If you are only being towed in the bay for a short distance, you may use the bow pad-eye to secure the tow-line. While undertow, steer a straight course behind the other boat. Always drop your jib while being towed; you may decide to leave the main up while under tow (a good idea if it is dark), but be sure you do not sail into the boat ahead. Always leave ample distance between the boats, especially when in rough seas, and never get your body, hands or feet between the two boats. **Never** try to hold onto a towline with your hands. When a line is thrown to you, immediately secure it. When you are being towed for a longer distance, carefully inspect the line, making sure that it is not chafing through. If a tow line snaps, it can be very dangerous and it may injure someone as it flings about.

### **Becalmed**

If you are caught without wind, particularly towards dark in the ocean, it is likely that you will have to pick up a tow to make it back to the harbor. Without a tow the boat can only get forward momentum from paddling. Sculling is difficult for anything but very short distances in a J/22. In the bay, tides will have a strong effect on you. If the tide is incoming, this will help you make it back to the base, Out in the ocean the prevailing current runs down the coast. Therefore, if you are west of the jetty, the current will help carry you home. You may still need to paddle and look for a tow. Never get too close to shore, especially in light air. You may not be able to get back out again. This also applies to the jetty. If you are becalmed east of the jetty, your condition is more serious. The current will carry you farther south or into the rocks or kelp beds onshore. In this case, if you are losing headway, anchor. Leave your sails up after dark so that a passing boat can more easily see you. Signal a passing boat, using one of the signal flares if necessary. **Do NOT swim to shore or abandon the boat.** As you progress and sail on your own you **MUST** learn to recognize the wind patterns and avoid being caught with no wind, especially out in the ocean. In class, always stay in sight of your instructor and the other J/22 keelboats. Your instructor can assist in towing boats back to the base if the wind dies.

### **Fog**

Just a short word regarding fog is appropriate here. If you are outside the harbor and a fog bank is quickly moving in, take a bearing on the west jetty with the compass of your smart phone, then sail at that heading to return home, being careful to avoid the jetty and other known hazards. It is also important to take into account the effect the current will have on you, especially in very light air. There are fog signals that should be used by all boats when maneuvering in dense fog. These signals should be memorized and used when needed in low visibility weather. These fog signals are listed below.

**Sailing vessels underway should sound, at intervals of not more than two minutes:** A prolonged blast (5 seconds), followed by 2 short blasts (1 second each).

**Unencumbered power vessels underway shall sound, at intervals of not more than two minutes:** A prolonged blast (5 seconds).

Other horn signals you should be aware of: power vessel leaving a dock or getting underway



should sound one prolonged blast. There are many other signals and rules sailors will want to learn as they progress.

### **Collisions**

Should you be involved in a collision, it is important that you follow the proper procedures. Our program is a community access program. We have large numbers of people using the boats with very limited funds. Please keep in mind that all collisions can be prevented - sail safe, be alert and keep in mind that you are responsible for the safety of your crew, yourself, and the boat you are sailing.

For Minor Collisions (**no injuries and minor boat damage**)

1. Check to make sure that all persons involved are uninjured and on board.
2. Obtain the following information from the other party in the collision:
  - A. Registration (CF) number, boat type, docking location and boat name
  - B. Operator's name, phone number, and address
  - C. Witnesses or others on board: name, phone number, and address
3. Report immediately to your instructor and the UCI Boating Director.
4. Write a description of the accident and all-important details while it is still clear in your mind.
5. **California Boating Accident Report Form.** You and your instructor must fill out this form immediately. Turn it in to the **Campus Recreation** Office. Completion of this form is legally required. See attached form for example (Appendix B). The office has these forms -- or you may obtain one directly from the Harbor Patrol.

For Major Collisions (**These include cases where there is boat damage over \$500, physical injuries or problems with the cooperation of the other party**).

1. Follow the above procedure as well as the following additional rules.
2. **Treat all medical emergencies promptly! Call 911 if on the dock or Newport Beach Harbor Patrol (949) 723-1002 if you are on the water. The Harbor Patrol phone number should be stored in your cell phone for use in an emergency! Alternatively, if you are on the water, call 911 and ask that your call be directed to the Newport Beach Harbor Patrol.**
3. Wait at the scene (anchor if necessary) for the Harbor Patrol.
4. Have the Harbor Patrol fill out an accident report, then return it to the office (the Harbor Patrol will provide assistance if the boat is disabled).

**NOTE: YOUR INSTRUCTOR IS FAMILIAR WITH THESE PROCEDURES AND WILL ASSIST YOU THROUGH EACH STEP. DO NOT PROCEED WITHOUT YOUR INSTRUCTOR'S APPROVAL.**

## **Medical Problems at Sea**

### **Hypothermia**

Hypothermia is the lowering of the body's core temperature due to exposure. Wind and water greatly increase the chill factor, increasing the risk of hypothermia. The best protection is warm, waterproof clothing. Be sure you and your crew are prepared. It does not need to be very cold for this condition to occur. The first sign is uncontrolled shivering and cold extremities. Later symptoms include slowing of the pulse, irrational behavior and, in later stage, unconsciousness. Hypothermia is a serious medical emergency and should be professionally treated. Warm the victim with blankets, extra clothes (even the boat cover could be used). Wet clothing should be removed. Use your own body heat to keep the victim warm, if necessary. Southern Californians tend to underestimate our weather and are often unprepared to protect themselves from getting wet and cold.

### **Heat Emergencies**

Heat emergencies often occur on hot humid days with no breeze. Drinking water at regular intervals, wearing protective gear such as hats and sunglasses will help prevent heat emergencies. Heat stroke is life threatening. The signals are hot, red skin, constricted pupils, very high body temperature and dry skin. First aid includes moving person to a cool environment cooling them with ice or cool water and contacting emergency medical services. If the person is able to drink liquids, have them drink cool water or other cool beverages that do not contain alcohol or caffeine.

Heat exhaustion is less dangerous than heat stroke. The signals are cool moist skin, heavy sweating and dilated pupils. First aid includes moving the person to a cool environment, care for shock by elevating the feet and giving cool water every 15 minutes.

Always be prepared for the sun in Southern California with sunglasses, hat or visor and sunscreen. Bring your own water bottle even for short classes.

### **Sea Sickness**

This is a common problem, particularly for the first time sailor, although almost everyone experiences it at some time. Victims become very weak and are susceptible to falling overboard, as they lose their sense of balance. It is advisable to return to the harbor immediately with sea sick victims. Dehydration can become a problem with prolonged vomiting. Those who suffer from seasickness can try some of the medical remedies including over the counter pills or the prescription ear patches. Monitor your reaction carefully with any medicine and watch for side effects.

When out for a day, always keep in mind any special medical problems of your crew. These might include diabetes, epilepsy, asthma, heart problems, or any other physical limitations. Remember, it may take several hours to return to the dock in order to obtain medical assistance.

## Jury Rigging (What To Do If Something Breaks)

The whole idea behind jury-rigging is to fashion a way to replace whatever has broken with something that will serve the same function, using materials that are on hand. Since every situation is a little different, ingenuity and common sense can be very helpful. The materials available can include a spinnaker pole, paddle, ice chest, line, sails, and any spare halyards on the mast. Most problems will occur with the mast, so we will discuss this first.

### Mast and Rigging

If your mast breaks, check that the crewmembers are uninjured, then anchor and start looking for a tow. A sailboat with a broken mast is a universally recognized distressed condition and it probably will not be a long wait. The pieces should be cleared up so that shrouds and so forth are not dragging in the water. The mainsail should be removed by cutting the sail slides off (you do carry a pocket knife, don't you?), saving as much as you can.

If one of the shrouds or stays break, but the mast is still standing, **relieve the pressure on the weakened side of the mast immediately**. This may be accomplished by tacking or luffing (depending on what has given way), then quickly dropping the sails. If a shroud or spreader goes on the weather side, tack. If the backstay goes turn into the wind, quickly lower the jib, then the main, keeping the mainsheet cleated. If a forestay goes, let out the mainsheet and turn downwind immediately then drop the main. (This is one time the main should be lowered pointing downwind). Once you have stabilized the situation and the mast is not in immediate danger of collapse, the next step is to get home. Try to get a tow from another boat. If no boat is nearby, or cannot be lured nearby with your distress flares, it is time to think about jury-rigging.

Keep in mind that when you are done, the mast will not be as strong as it was, so do not put much pressure on it. If the wind is strong enough to do so, sail back under the jib alone. The main puts several times the strain on the rig as the jib does. If the main is needed, luff it whenever the boat starts to heel more than 5 degrees or so. Some possible problems are listed below along with suggestions for jury rigs:

**Main Halyard Breaks:** Furl main and sail back with jib.

**Jib Halyard Breaks:** Use spinnaker halyard.

**Backstay Breaks:** Use main halyard as temporary backstay. Sail back with jib. Tie loops in the broken wires, then tie line in between.

**Forestay Breaks:** Fasten spinnaker halyard to bow cleat, winch tight. Lower jib. Attach jib halyard to stem head fitting or bow cleat, not bow chock. Winch tight. Raise jib on spinnaker halyard.

**Upper Shroud Breaks:** Use jib halyard as temporary shroud. Use spinnaker pole as spreader

if the halyard is long enough. Winch tight. (Be careful, mast will easily break).

**Lower Shroud Breaks:** Tack to relieve pressure. Drop main while staying close hauled. Use topping lift as lower shroud. Winch tight. Do **NOT** put much strain on rig. You could sail back with jib only.

**Spreader Comes Loose:** Push back in place and lash or use jib halyard and spinnaker pole as in "UPPER SHROUD" above.

## Steering Failures

Two basic problems can occur with the steering gear on the J/22. The tiller can break, leaving the rudder intact but unable to be moved, or the rudder can break off partly or completely. If the tiller breaks, the boat may still be operable using the stump of the tiller and lashing the broken piece or the paddle to it with spare line. Use the sails to help you steer. (See steering with the sails below).

## Sailing with the Mainsail Alone

This is a great option anytime you want to de-power your boat. The J/22's sail very well on just the mainsail. If the wind picks up, or you have an inexperienced crew, or you just want to sail in a more relaxed manner, take the jib down. Keep the jib sheet tight, so the jib does not blow off the deck. Use a sail-tie to hold the entire jib in place.

Even though our mainsails have reef points, the best way to reduce sail area and be able to sail the boat safely in very strong winds is by lowering and furling the jib and sailing with just the reefed mainsail.

## Holes and Leaks

About the only way a J/22 will develop a bad leak is as a result of a collision. Should this happen, lower the sails (unless they can be used to heel the boat so that the hole is out of the water). It is very difficult to plug a good-sized hole while the boat is moving.

Use your flares to attract attention as soon as you have assessed the situation and determine you might need assistance. Don't wait till it is too late to use the flares. Also, put on the lifejackets.

To plug the hole, use the spinnaker (if it is aboard), clothing or a cushion. If the hole is forward of the keel, the jib can be wrapped completely around the bottom of the boat, covering the hole and lashed down with a line. Water pressure will hold it over the hole. To bailout the water, use a bailer, bucket, or ice chest.

If for some reason the lazarette hatches are open, close them, as they are the only flotation tanks. Do not count on the boat staying afloat, even with air in all the flotation tanks. If you collided with another boat, it should be standing by to assist. Call the Harbor Patrol (949) 723-1002 immediately with your cell phone. Their boats are equipped with powerful pumps. The Harbor Patrol phone number should be stored in your cell phone for use in an emergency!

Again, if the boat has any possibility of sinking, **everyone** on board should immediately don life jackets. Should the boat sink, make sure everyone is clear of entangling lines. Try to mark the spot if possible. If there is not a rescue boat, keep the crew together and swim slowly toward shore. A group of people in the water is easier to spot than a solitary swimmer.

### Use of Fares

Flares may be used to attract attention or direct rescuers during an emergency in the fog or dark. Four hand held red flares are stowed in the port watertight compartment in the cabin of each UCI J/22. These tubular devices have a protective cap at one end which is removed to gain access to the ignition mechanism. Burn time is several minutes.

Always follow the instructions of the flare manufacturer exactly. Serious injury or property damage can occur if these devices are used incorrectly. Always be sure there are no easily combustible materials nearby that could catch fire because of malfunction or human error. While standing, ignite the flare and hold it away from your body at a 45 degree angle. Do not hold a burning flare overhead, it could drop sparks on your head! Once the flare burns out place the remains in a non-combustible container or soak with water to avoid accidental ignition of other materials.

If you find yourself in the water ignite the flare while holding it away from your body. In this case it is essential to hold the flare as high out of the water as possible so it is visible to rescuers. Wave the signal from side to side over your head. Avoid looking at the flare while it is burning to avoid eye damage and to preserve night vision.

## Advanced Sailing

### Ocean Sailing

#### Heavy Seas

Extremely heavy seas could **broach** (capsize) a J/22 if they hit it sideways, or **pitch pole** it (throw it end over end) if they hit from the stern.

- The safest course in heavy seas is at a 45-degree angle into the waves or, if you must go downwind, a 45-degree angle down the waves.
- Attentive and skillful steering will be needed when sailing downwind to avoid broaching or

jibing and you will only be allowed one mistake, so avoid it if you can.

## **Spinnakers**

This section to be completed soon

## **Advanced Boat Handling**

### **Drills for Maneuvering Skills:**

#### **Small Circles:**

- Keep the boat moving and turning at all times (Never sail straight)
- Extend across the wind (reaching)
- Tighten the turn in the tack and gybe.
- Trim the sails for the current heading at all times

#### **Spin in Place:**

- Hold position (use as little space as possible)
- Hold the tiller hard over (touching the hull)
- Use the sails aggressively to steer the boat

#### **Race Track:**

- Sail full speed at all times
- Trim the sails to the course
- In the tack, be head-to-wind when shrouds pass the mark
- In the gybe, be stern-to-wind when the shrouds pass the mark
- Gybe the main when the shrouds pass the mark.
- On the reach, steer to the initial point for the next turn (don't aim at the mark)

#### **Follow the leader:**

- Follow in the wake of the boat ahead
- Don't overlap the boat ahead
- Rudder-brake as needed
- Only cut corners to catch up
- Anticipate speed changes (watch the sails and helm of the boat ahead)

#### **Rudder Braking:**

- Maintain course (don't let the boat turn)
- Push the tiller quickly to the hull
- As soon as the bow starts to turn, reverse the helm all the way to the Hull.
- Each cycle of the helm will take longer as the speed drops

#### **Stop/Start:**

##### **(Stop)**

- Turn sharply to a close-hauled course (45 degrees to the wind)
- Back the main to counter the turn
- Once the boat stops, hold the tiller against the hull on the leeward side

- Steer with the sails to maintain a close-hauled course

**(Start)**

- Center the helm
- Trim the sails quickly
- Steer with the sails to a close-reach (60 degrees off the wind)
- As the rudder begins to respond, slowly head up to close-hauled while trimming the sails

**Rounding Leeward Marks:**

- Aim for a point approximately 45 feet from the mark
- Make a smooth circular turn that ends with the shrouds close to the mark
- At the mark, the tiller should be centered, the turn complete
- The sail should be trimmed and the boat at full speed
- If only one crew, have crew trim main, skipper trim jib

**Passing Behind Starboard Tack Boats:**

- Turn down early, at approx 3 boat lengths
- Crew should ease sails to correct trim for the course
- Aim at the stern of the other boat
- Follow the stern up to a close-hauled course
- Trim the sails with the turn to upwind trim
- Be finished turning, with tiller centered as you pass behind the boat

**Sailing Upwind****Skipper:**

- Stand or kneel on one knee in front of tiller on windward side
- Face forward, lean to windward
- Watch the jib tell-tails (yarns in the round window)
- Sail straight as needed
- Steer quickly in response to wind shifts and puffs
- Check the masthead fly and traffic as needed but don't stare
- Trim the main using the leeward side cleat
- Delegate as much trimming to crew as possible

**Crew:**

- Trimmer can sit on the front of the leeward side bench facing the jib
- Other crew should stay low or sit out on deck (don't block skipper's view.)
- Trim the sails corresponding to boat speed (not wind speed)
- Slow boat = Loose trim (foot of jib over the edge of boat)
- Med boat= Med trim (foot of jib in 5" from edge)
- Fast boat=Tight trim (foot of jib in 10" from edge)

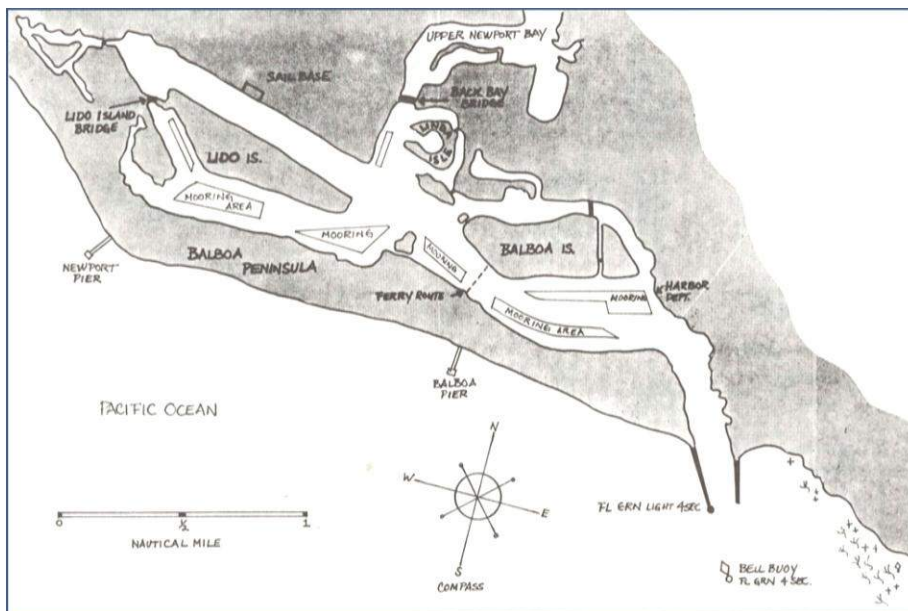
## Conclusion

This manual, while extensive, does not contain all the information a prudent sailor needs to know. Rather it should be used as a basis from which to build your knowledge. For each topic covered in this manual there are books and articles available which discuss in much greater detail and depth each individual subject. We hope, and expect, that you will continue your education by doing further reading and taking advantage of some of the many excellent courses, seminars and opportunities to learn from more experienced persons in this area. Only then will you be on your way to becoming a true "Corinthian yachtsman". Remember, as in any endeavor, there is always more to be learned. Sailing is a sport that can be enjoyed for a lifetime. To quote a famous sailor,

"Believe me, my young friend, there is nothing, absolutely nothing -- half so much worth doing as simply messing about in boats."

The Water Rat  
The Wind in the Willows

## Appendices



KNOTS

BOWLINE



<https://www.boat-manuals.com/>





IMPORTANT—It is mandatory that all items be completed when the information is available.

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### CALIFORNIA BOATING ACCIDENT REPORT

THE OPERATOR OF EVERY RECREATIONAL VESSEL IS REQUIRED BY SECTION 6306 OF THE HARBOR AND NAVIGATION CODE TO FILE A WRITTEN REPORT WHENEVER A BOATING ACCIDENT OCCURS WHICH RESULTS IN DEATH, DISMEMBERMENT, INJURY THAT REQUIRES MEDICAL TREATMENT BEYOND FIRST AID, TOTAL PROPERTY DAMAGE IN EXCESS OF \$500, OR COMPLETE LOSS OF A VESSEL. REPORTS MUST BE SUBMITTED WITHIN FORTY-EIGHT (48) HOURS IN CASE OF DEATH OCCURRING WITHIN 24 HOURS OF THE ACCIDENT, DISMEMBERMENT OR INJURY THAT REQUIRES MEDICAL TREATMENT BEYOND FIRST AID. ALL OTHER REPORTABLE ACCIDENTS MUST BE SUBMITTED IN WRITING WITHIN TEN (10) DAYS. REPORTS ARE TO BE SUBMITTED TO THE DEPARTMENT OF BOATING AND WATERWAYS, 1828 Z STREET, SACRAMENTO, CALIFORNIA 95814. (916) 322-1822. FAILURE TO SUBMIT THIS REPORT AS REQUIRED IS A VIOLATION AND IS PUNISHABLE BY A FINE NOT TO EXCEED FIVE HUNDRED DOLLARS (500) OR IMPRISONMENT NOT TO EXCEED 90 (90) MONTHS OR BOTH.

**COMPLETE ALL BLOCKS** (Print or type all information. Indicate those not applicable by "N/A." Those unknown by "U/I.")

<b>1. OPERATOR'S NAME AND ADDRESS</b> HOME PHONE ( ) :                      WORK PHONE ( ) : AGE _____		<b>2. RENTED BOAT</b> <input type="checkbox"/> YES <input type="checkbox"/> NO	<b>3. OPERATOR'S EXPERIENCE</b> THIS TYPE OF BOAT                      OTHER BOAT OPERATING EXPERIENCE <input type="checkbox"/> UNDER 50 HOURS <input type="checkbox"/> UNDER 50 HOURS <input type="checkbox"/> 50 TO 100 HOURS <input type="checkbox"/> 50 TO 100 HOURS <input type="checkbox"/> 100 TO 500 HOURS <input type="checkbox"/> 100 TO 500 HOURS <input type="checkbox"/> OVER 500 HOURS <input type="checkbox"/> OVER 500 HOURS		
<b>4. OWNER'S NAME AND ADDRESS</b> HOME PHONE ( ) :                      WORK PHONE ( ) :		<b>5. NUMBER OF PERSONS ON BOARD</b> _____	<b>7. FORMAL INSTRUCTION IN BOATING SAFETY</b> <input type="checkbox"/> NONE <input type="checkbox"/> APPLICABLE REG. COURSE <input type="checkbox"/> U.S.C.G. AUXILIARY <input type="checkbox"/> STATE <input type="checkbox"/> OR OTHER EQUIVALENT <input type="checkbox"/> OTHER (SPECIFY) _____		
<b>VESSEL NO. 1 (YOUR VESSEL)</b>					
<b>8. BOAT NUMBER</b>	<b>9. BOAT NAME</b>	<b>10. BOAT MANUFACTURER</b>	<b>11. BOAT MODEL</b>	<b>12. NVRB HULL IDENT. NO.</b>	
<b>13. TYPE OF BOAT</b> <input type="checkbox"/> OPEN MOTORBOAT <input type="checkbox"/> CABIN MOTORBOAT <input type="checkbox"/> AUXILIARY SAIL <input type="checkbox"/> SAIL (SAIL) <input type="checkbox"/> KAYAK/BOAT <input type="checkbox"/> KAYAK <input type="checkbox"/> SLENE <input type="checkbox"/> JET SKI <input type="checkbox"/> OTHER (SPECIFY) _____	<b>14. HULL MATERIAL</b> <input type="checkbox"/> WOOD <input type="checkbox"/> ALUMINUM <input type="checkbox"/> FIBER <input type="checkbox"/> FIBERLESS PLASTIC <input type="checkbox"/> RUBBER/PVCL <input type="checkbox"/> OTHER (SPECIFY) _____	<b>15. PROPULSION</b> <input type="checkbox"/> OUTBOARD <input type="checkbox"/> INBOARD <input type="checkbox"/> INBOARD-OUTBOARD <input type="checkbox"/> JET <input type="checkbox"/> SAIL <input type="checkbox"/> PADDLE <input type="checkbox"/> OTHER (SPECIFY) _____ TYPE OF FUEL _____	<b>16. BOAT DATA</b> NUMBER OF ENGINES _____ HORSEPOWER (TOTAL) _____ MAKE OF ENGINE _____ YEAR BUILT _____ MAKE OF MOTOR _____ YEAR BUILT (BOAT) _____ MAKE OF MOTOR _____ YEAR BUILT (BOAT) _____		
<b>17. PRIMARY BOAT USE</b> <input type="checkbox"/> RECREATIONAL <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> POLICE <input type="checkbox"/> WORK BOAT			<b>18. PREVIOUS ACCIDENTS INVOLVING THIS BOAT</b> DATE(S) _____		
<b>VESSEL NO. 2 (OTHER VESSEL INVOLVED)</b>					
<b>19. BOAT NUMBER</b>	<b>20. BOAT NAME</b>	<b>21. BOAT MANUFACTURER</b>	<b>22. BOAT MODEL</b>	<b>23. NVRB HULL IDENT. NO.</b>	
<b>24. NAME OF OPERATOR</b> HOME PHONE ( ) :                      WORK PHONE ( ) : AGE _____		<b>25. ADDRESS</b> _____			
<b>26. NAME OF OWNER</b> HOME PHONE ( ) :                      WORK PHONE ( ) :		<b>27. ADDRESS</b> _____			
<b>WITNESSES</b>					
NAME		ADDRESS		TELEPHONE NUMBER	
NAME		ADDRESS		TELEPHONE NUMBER	
NAME		ADDRESS		TELEPHONE NUMBER	
<b>ACCIDENT DATE AND LOCATION</b>					
<b>28. DATE OF ACCIDENT</b>	<b>29. TIME</b>	<b>31. NAME OF BODY OF WATER</b>		<b>33. LOCATION</b> (AS NEARLY AS POSSIBLE)	
		<b>32. LAST PORT OF CALL</b>			
<b>34. STATE</b>		<b>35. NEAREST CITY OR TOWN</b>		<b>36. COUNTY</b>	
<b>ENVIRONMENTAL CONDITIONS</b>					
<b>37. WEATHER</b> <input type="checkbox"/> CLEAR <input type="checkbox"/> BATH <input type="checkbox"/> CLOUDY <input type="checkbox"/> SNOW <input type="checkbox"/> RAIN <input type="checkbox"/> HAZE		<b>38. WATER CONDITIONS</b> <input type="checkbox"/> CALM <input type="checkbox"/> CHOPPY <input type="checkbox"/> ROUGH <input type="checkbox"/> VERY ROUGH <input type="checkbox"/> STRONG CURRENT		<b>39. TEMPERATURE (ESTIMATE)</b> AIR _____ °F WATER _____ °F	<b>40. WIND</b> <input type="checkbox"/> NONE <input type="checkbox"/> LIGHT (1 TO 9 MPH) <input type="checkbox"/> MODERATE (10 TO 19 MPH) <input type="checkbox"/> STRONG (20 TO 29 MPH) <input type="checkbox"/> STORM (30 MPH AND OVER)
				<b>41. VISIBILITY</b> <input type="checkbox"/> GOOD <input type="checkbox"/> FAIR <input type="checkbox"/> POOR	
				<b>42. WEATHER ENOUGH TO BEC</b> <input type="checkbox"/> WAS AS FORECAST <input type="checkbox"/> NOT AS FORECAST <input type="checkbox"/> FORECAST NOT ESTIMATED	

A-1 (REV. 11-83) THIS CONFIDENTIAL REPORT IS USED IN RESEARCH FOR THE PREVENTION OF ACCIDENTS AND A COPY IS FORWARDED TO THE UNITED STATES COAST GUARD. COMPLETE BOTH SIDES. 21142-001 3-84 15M 0-04P

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ACCIDENT DATA

<b>43. OPERATION AT TIME OF ACCIDENT</b> (CHECK ALL APPLICABLE) <input type="checkbox"/> GOVING <input type="checkbox"/> STOPPING <input type="checkbox"/> MANEUVERING <input type="checkbox"/> AT ANCHOR <input type="checkbox"/> WATER SKIING <input type="checkbox"/> TIED TO DOCK <input type="checkbox"/> TOWING <input type="checkbox"/> OTHER (USE ITEM 48)		<b>44. TYPE OF ACCIDENT</b> <input type="checkbox"/> BROUING <input type="checkbox"/> COLLISION WITH FIXED OBJECT <input type="checkbox"/> CAPSIZING <input type="checkbox"/> COLLISION WITH FLOATING OBJECT <input type="checkbox"/> FLOODING <input type="checkbox"/> FALL OVERBOARD <input type="checkbox"/> SWIRLING <input type="checkbox"/> FALL IN BOAT <input type="checkbox"/> FIRE OR EXPLOSION (FUEL) <input type="checkbox"/> PERSONS HIT BY BOAT OR PROPELLER <input type="checkbox"/> FIRE OR EXPLOSION (OTHER THAN FUEL) <input type="checkbox"/> OTHER (USE ITEM 48) <input type="checkbox"/> VESSEL COLLISION		<b>45. IN YOUR OPINION, CAUSE OF ACCIDENT</b> <input type="checkbox"/> WEATHER CONDITIONS <input type="checkbox"/> REVERSED VIEW <input type="checkbox"/> EXCESSIVE SPEED <input type="checkbox"/> FAULT OF HULL <input type="checkbox"/> NO PROPER LOOKOUT <input type="checkbox"/> FAULT OF MACHINERY <input type="checkbox"/> OVERLOADING <input type="checkbox"/> FAULT OF EQUIPMENT <input type="checkbox"/> IMPROPER LOADING <input type="checkbox"/> FATIGUE <input type="checkbox"/> HAZARDOUS WEATHER <input type="checkbox"/> OTHER (SPECIFY) <input type="checkbox"/> ALCOHOL <input type="checkbox"/> DRUGS		
<b>46. PERSONAL FLotation DEVICES (PFD)</b> WAS THE BOAT ADEQUATELY EQUIPPED WITH COAST GUARD APPROVED PERSONAL FLotation DEVICES? <input type="checkbox"/> YES <input type="checkbox"/> NO WERE THEY ACCESSIBLE? <input type="checkbox"/> YES <input type="checkbox"/> NO WERE THEY USED? <input type="checkbox"/> YES <input type="checkbox"/> NO		WAS THE VESSEL CARRYING NONAPPROVED LIFESAVING DEVICES? <input type="checkbox"/> YES <input type="checkbox"/> NO WERE THEY ACCESSIBLE? <input type="checkbox"/> YES <input type="checkbox"/> NO WERE THEY USED? <input type="checkbox"/> YES <input type="checkbox"/> NO		<b>47. FIRE EXTINGUISHERS</b> WAS APPROVED TYPE FIRE FIGHTING EQUIPMENT ABOARD? <input type="checkbox"/> YES <input type="checkbox"/> NO WERE THEY USED? (IF "YES", LIST TYPE AND NUMBER) <input type="checkbox"/> YES <input type="checkbox"/> NO		
<b>48. ACCIDENT DESCRIPTION</b> DESCRIBE WHAT HAPPENED AND WHAT COULD HAVE PREVENTED THIS ACCIDENT. INCLUDE FAILURE OF EQUIPMENT. EXPLAIN CAUSE OF DEATH OR INJURY. MEDICAL TREATMENT, ETC. USE SKETCH IF HELPFUL. IF NEEDED, CONTINUE DESCRIPTION ON SEPARATE PAPER.						
<b>49. POLICE REPORT TAKEN?</b> <input type="checkbox"/> YES <input type="checkbox"/> NO    AGENCY NAME _____						
<b>50. DECEASED</b>						
NAME		ADDRESS		DATE OF BIRTH	HOW WAS— <input type="checkbox"/> SWAMMER <input type="checkbox"/> NON-SWAMMER <input type="checkbox"/> DRANK ALCOHOL <input type="checkbox"/> USING DRUGS	CAUSE OF DEATH <input type="checkbox"/> DROWNING <input type="checkbox"/> DISAPPEARANCE <input type="checkbox"/> OTHER (USE ITEM 48)
NAME		ADDRESS		DATE OF BIRTH	HOW WAS— <input type="checkbox"/> SWAMMER <input type="checkbox"/> NON-SWAMMER <input type="checkbox"/> DRANK ALCOHOL <input type="checkbox"/> USING DRUGS	CAUSE OF DEATH <input type="checkbox"/> DROWNING <input type="checkbox"/> DISAPPEARANCE <input type="checkbox"/> OTHER (USE ITEM 48)
<b>51. INJURED: AMBULANCES, OTHER MEDICAL TREATMENT OR DISABLED OVER 24 HOURS</b>						
NAME		ADDRESS		DATE OF BIRTH	NATURE OF INJURY INJURED WAS— <input type="checkbox"/> DRANK ALCOHOL <input type="checkbox"/> USING DRUGS	<input type="checkbox"/> RECEIVED TREATMENT <input type="checkbox"/> INCAPACITATED OVER 24 HOURS
NAME		ADDRESS		DATE OF BIRTH	NATURE OF INJURY INJURED WAS— <input type="checkbox"/> DRANK ALCOHOL <input type="checkbox"/> USING DRUGS	<input type="checkbox"/> RECEIVED TREATMENT <input type="checkbox"/> INCAPACITATED OVER 24 HOURS
TELEPHONE NUMBER ( ) _____						
<b>52. PROPERTY DAMAGE (ESTIMATE AND DESCRIBE)</b>						
THIS BOAT \$ _____ TOTALLY DESTROYED? <input type="checkbox"/> YES <input type="checkbox"/> NO    OTHER BOAT \$ _____    TOTAL BOAT PARTS \$ _____    OTHER PROPERTY \$ _____						
<b>53. PERSON COMPLETING REPORT</b>						
SIGNATURE OF PERSON COMPLETING REPORT				ADDRESS		
QUALIFICATION (CHECK ONE) <input type="checkbox"/> OPERATOR <input type="checkbox"/> OWNER OTHER (SPECIFY) _____				DATE SUBMITTED		
				TELEPHONE NUMBER		

DID YOU SIGN AND DATE THIS REPORT? (See Section 53)

## Glossary

abeam: at an angle of approximately 90 degrees to the bow of the boat

aft: towards the stern or back of the boat

afterguy: on a spinnaker the line used to trim the sail that is attached to the pole amidships: in or near the middle of the boat

apparent wind: the wind you feel on a moving boat. The apparent wind is a combination of boat wind and true wind

back winding: when you backwind a sail the wind hits it from the wrong side

batten: a wood or fiberglass stick used to support the aft edge of the mainsail

batten pocket: a pocket sewn into the edge of the sail to allow a batten to be inserted beam: the width of the boat at the widest point

beam reaching: sailing at an angle of approximately 90 degrees to the wind bear off: changing course away from the wind; same as falling off

beating: sailing at an angle of approximately 45 degrees to the wind or as close to the wind as possible block: a pulley through which line or wire passes on a boat

bolt rope: a rope, which is sewn into the luff and sometimes the foot of a sail, so that it may be attached to the spars

boom: a pole, which supports the mainsail along its lower edge

boom vang: a rope or wire which pulls the boom down as the boat sails on a reach or run bow: the front of a boat

bowline: a knot used to tie a loop in the end of the line

broad reaching: sailing at an angle of approximately 135 degrees to the wind

by-the-lee: sailing downwind with the wind coming slightly from the leeward side of the boat

cam cleat: a common type of cleat with two spring loaded jaws which hold the line

capsizing: overturning the boat while sailing

cleat: a device used for securing a line

cleat half hitch: a knot used for securing a line to a cleat

clew: the lower rear corner of a sail

close reaching: sailing at an angle of approximately 70 degrees to the wind this is often the fastest point of sail in a small boat

cockpit: the section of the boat where the tiller, seats and most control gear is located

coming about: heading towards the wind until the sail changes sides and fills on the other side same as tacking

deck: the flat, forward part of the boat

dinghy: a small open boat

downhaul: a line used to pull down the forward edge of a sail

draft: 1. The depth of a boat beneath the water ~  
2. The amount of fullness in the sail on the forward/aft curve

fairlead: an eye through which line is passed

falling off: changing course away from the wind

figure-eight knot: a knot used to keep the end of a line from slipping through a fairlead or other rigging (a stop knot)

foot: the bottom edge of a sail

foreguy: the line that is used on a spinnaker pole to hold the pole down forward: towards the bow of the boat

freeboard: the distance between gunwale and waterline of a boat

give way vessel: the vessel, in a collision situation that alters course to avoid the collision

gooseneck: a fitting, which connects the mast and the boom

gudgeon: a fitting, usually on the transom of a small boat, which connects the rudder to the transom of the boat

gunwale: a strip, which runs along the corner of the hull and deck of the boat

gybe: (also spelled jibe) to change tacks by turning the boat so that the wind passes across the stern. When running downwind the boom swings from one side to the other.

halyard: a line used to raise the sail. Main halyard, jib halyard, etc.

hank: a fitting used to attach the luff of the jib to the headstay

head: the top corner of a sail

header: a change in wind direction so that the eye of the wind shifts slightly more leeward of the boat

heading up: changing course towards the wind

headstay: the standing rigging at the bow of the boat. Keeps the mast from falling backwards, also called jib stay or forestay

headway: forward momentum

heeling: tipping in a sailboat, but not necessarily to the point of a capsize

helm: another name for the tiller, or steering device

hiking out: while sitting on the rail, leaning out over the side of a boat in order to prevent excessive heeling

hull: the shell or body of the boat

in irons: being stuck facing into the wind without enough momentum to change direction

jib: a small forward sail on some boats

jib halyard: a line or wire used to hoist the jib

jibing: bearing away from the wind until the sail changes sides and fills the other side; also called gybing

jib sheet: a line used to adjust the jib in and out

jibstay: the wire, which supports the mast from the bow of a boat

keel: the permanent weight, which protrudes into the water beneath the boat

keelboat: a boat that has a weighted keel for stability to prevent leeway (instead of a centerboard)

lazy sheet: the jib sheet, which is not being used

leach: (also spelled leech) the back edge of a sail

leeward: the side of the boat, which is away from the wind, or the side that the boom is on

leeward helm: a tendency for a boat to bear off of the wind by itself

leeway: side slippage through the water by the boat

lift: a change in wind direction so that the eye of the wind shifts slightly more to windward of the boat  
line: most ropes used on a boat

loose-footed: a mainsail, which is connected to the boom only at lower corners, as the Lido is

luff: the forward edge of a sail. This also means to allow your sails to flutter

main halyard: a line, which pulls the mainsail to the top of the mast

mainsail: the sail, which fits between the mast and boom, the main propulsion in most boats

mainsheet: a line used to adjust the mainsail in and out

mast: the vertical pole to which sails are attached

mast step: a fitting in a boat in which the lower end of the mast is secured

outhaul: a line used to pullout the bottom edge of a sail

painter: a line used to secure a boat to a dock or mooring

pinching: sailing slightly closer to the wind than is efficient, with the sails pulled in too tightly

pintle: a fitting, usually on a rudder, which connects the rudder to the transom of the boat

planing: skimming over the water in a lightweight boat, usually in medium to strong winds

point of sail: a term used to specify the boat's position relative to the wind

pointing: sailing at an angle of approximately 45 degrees to the wind, or as close to the wind as possible

port: the left side of the boat, while facing forward on the boat

port tack: sailing with the wind coming over the port side and mainsail on starboard side reach:

1. Any course between a boat and a run
2. To sail on such a course

roach: the extra area of a mainsail due in the curve in the leach of the sail

round up: to head sharply and unexpectedly into the wind, usually because of excessive weather helm

rudder: a board located at or near the stern of a boat used to change the boat's course through the water running: sailing at an angle of approximately 180 degrees to the wind

shackle: a clip used for attaching lines or sails quickly

shock cord: a stretchy cord consisting of many thin pieces of rubber

shroud: a wire at the side of a boat, which supports the mast

sloop: a boat with one mainsail and one jib

slot: the area between the jib and the main that allows wind flow between the sails. 80th sails must be trimmed properly for the slot to be open and effective

spar: a general name for a pole such as a mast, boom, spinnaker pole, whisker pole, etc.

spinnaker: a lightweight three-corner sail used when sailing off the wind

spinnaker pole: the pole that is used when flying a spinnaker. It helps hold out the sail and is carried on the opposite side from the boom

spinnaker sheet: the line that is used to trim the spinnaker that is attached to the sail. It is the line on the side opposite the spinnaker pole

spreaders: sticks which attach to the mast at right angles and help distribute the stress on shrouds

stand on vessel: the boat is a right of way situation that should maintain its current course. The other vessel should alter course to avoid a collision

square knot: a knot used for tying two lines together, particularly when they are of equal diameter

standing rigging: rigging which supports the mast, including the shrouds and the stays

stemhead fitting: a plate at or near the bow of the boat, to which the jibstay and jib tack are secured

starboard: the right hand side of the boat while facing forward in the boat

starboard tack: sailing with the wind coming over the starboard side and the mainsail on the port side

stern: the back end of the boat. ..

tacking: heading towards the winds until the sail changes sides and fills on the other side; same as coming about

tiller: a stick attached to the rudder which helps to steer the boat.

tiller extension: a stick which extends the length and changes the angle of the tiller for convenience while sailing

topping lift:

1. the line used to hold up the back of the boom when the mainsail is not hoisted
2. the line used to hoist and hold up the spinnaker pole

transom: the flat section at the back of the boat. On most small boats, the rudder is attached to the transom

traveler: the device which allows the adjustment of sheeting angle for various wind conditions

true wind: the wind velocity is felt on a stationary object

turtling: capsizing the boat so that it is completely upside down



wake: the wave created by a boat as it moves through the water

waterline: the line on the hull at which the boat floats in the water

weather helm: the tendency of the boat to head into the wind

whisker pole: a pole which is attached to the jib and the mast while running wing-and-wing

windward: the side of a boat over which the wind is blowing, or the opposite side of the boom

wing-and-wing: running downwind with the jib and mainsail on opposite sides

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## **J/22 Web Links**

<http://www.jboats.com/j22-one-design-sailboat>

<http://www.usaj22.com/>

<http://www.shoresails.com/onedesign/J/22guide.htm>

<http://www.northsails.com/tuningguides/TuningGuides/TuningGuidesJ/22/tabid/9243/Default.aspx>