



## PLAYBOOK SERIES #4 Issue 131

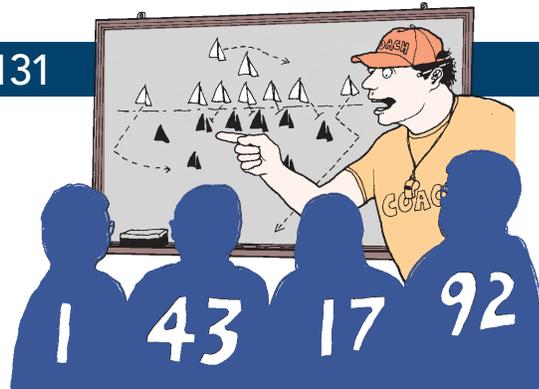
### Avoid mark rounding madness!

The marks of the course are often critical in determining how boats cross the finish line. That's because mark roundings bring the entire fleet together into one small, congested spot. Sailors typically have to make substantial turns and major sailhandling maneuvers to get around marks. At the same time they must avoid fouling (or getting fouled by) other competitors, maintain clear air, follow their strategy, sort out boathandling schemes, keep their boat going fast and more!

As a result of all this, it's not uncommon for competitors to make big gains or losses in the process of going around marks. When you add in the fact that a typical race can have four or more mark roundings, it's clear that these maneuvers have a disproportionately large impact on the race's outcome.

Therefore, it's important to have consistently good mark roundings. This requires practice, smooth boathandling, smart tactics, sound strategic planning, knowledge of the rules, skill to maintain speed while turning in a crowd, plus the ability to accurately assess risk versus reward.

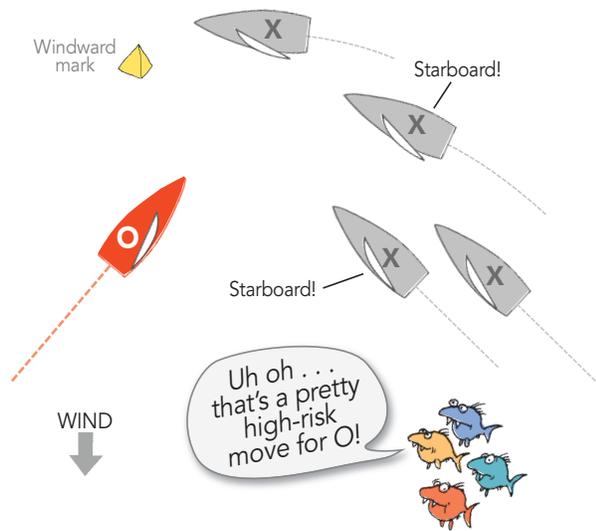
This fourth issue in our Playbook Series is full of 'plays' to help you do all these things. Hopefully, the Xs and Os on the next 15 pages will help you be more successful rounding marks.



### PLAY 1: Minimize risk at marks

Marks usually involve a relatively high degree of risk because boats converge with each other there, the fleet gets very compressed and the stakes are high. Therefore, before you get to a mark it's helpful to think a little about how much risk are you willing to take. For example, would you be willing to try cutting inside the boats ahead if that meant a 50% chance of fouling? What if it was 20%?

The level of risk you should take at a mark (or anywhere else) depends on a number of factors including: a) how far you are from the finish; b) how you are doing in the race; and c) how you are doing overall in the series. For example, if you're at the first mark of the first race in a series, you shouldn't take a very big chance. But if it's the last mark of the last race, and you need to pass three boats to finish on the podium, then the risk of cutting inside the boats ahead might well be worth taking.



# SPEED & Smarts

## PLAYBOOK #4



### Mark Roundings

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## ISSUE 131

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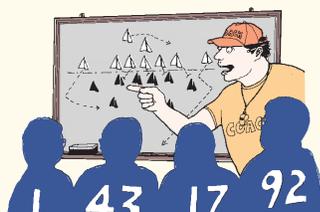
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## Follow these mark-rounding principles

When you're trying to sail fast upwind or downwind, it's good to have some proven rules of thumb as a guide. The same is true about rounding marks. There often seems to be chaos when the fleet converges at a mark, and this can make it tough to keep your overall gameplan in mind. On this and the next three pages are six important principles to help you stay on track at almost every mark that you round during a race.

### PLAY 2: Before rounding each mark, locate the next one.

Before you round any mark, it's valuable to locate the next mark visually. This is a critical ingredient for your next-leg strategy, and it may have a large impact on your mark rounding. For example, should you round inside other boats at the windward mark so you can do a jibe set, or outside so you can do a bearaway set and continue on starboard jibe with clear air? The answer to this and similar questions is largely dependent on the location of the next mark.

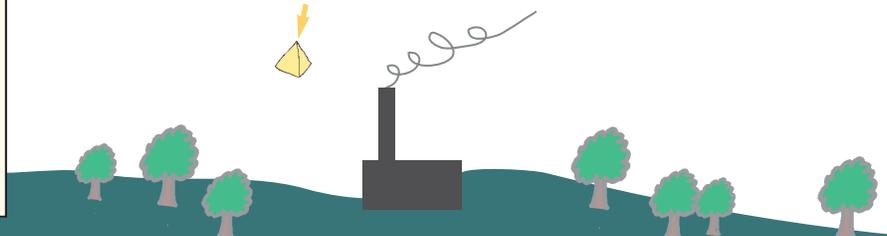
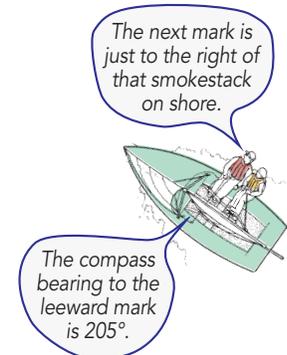
The last thing you should do is round a mark and *then* start looking for the next one. When this happens, the chances are good that you did not optimize your rounding or your strategy for the new leg. A classic mistake is not realizing when the next leg is a 'fetch' (i.e. when you can fetch the next mark on one tack or jibe). If you go around the windward mark and do a bearaway set, for example, you will lose a lot of boats if you later realize that your competitors are jibe-setting and fetching the mark on port.

On my boat, finding the next mark is so important that one team member has this specific responsibility every time we approach a mark. Their job is to locate the next mark (visually, if possible) while there is still time to plan our upcoming rounding and strategy for the next leg. Then they must quickly describe that mark's location to the rest of the crew. There are several good ways to do this:

**Identify a visual reference point** – A great guide for the mark's position is a unique geographic feature on shore behind the mark. For example, the mark might be just to the right or left of a particular building, tree, house, etc. Reference points like these are very useful because the entire crew can see them easily and quickly with minimal distraction from their job.

**Calculate a compass bearing** – If your boat has a compass, it can be very helpful to give the helmsperson a bearing to the next mark, especially if you can't see that mark. It's usually easy to figure this out ahead of time; for example, on a windward-leeward course the bearing for the run is the inverse (plus or minus 180°) of the bearing to the windward mark.

The location of the next mark is important, but the critical step is predicting how that mark's position will affect your strategy for the next leg and therefore the nature of your upcoming rounding (see next page).



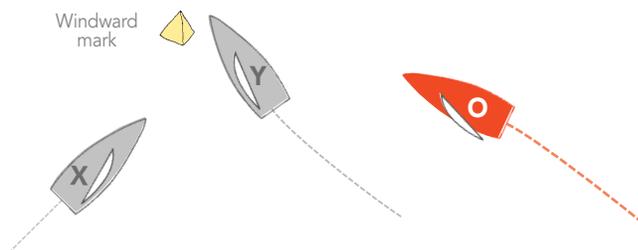
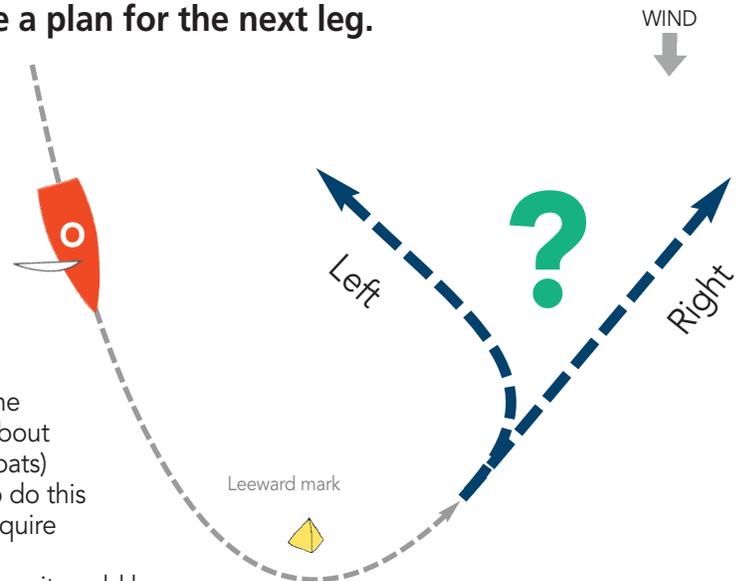
### PLAY 3: Before rounding each mark, have a plan for the next leg.

Almost every sailor realizes the importance of making a strategic plan for the first leg before they start the race. But how many of those sailors also develop a strategy for every other leg in the race?

It's tough to make a gameplan for the second leg before starting the race, but you should do this sometime before you begin that leg. It's much too late if you round the windward mark and then ask your crew, "OK, which way should we go on the run?" By that time you have likely missed your best chance to pursue the optimal strategy.

Instead of waiting until the last minute, look ahead to the next leg several minutes before you reach the mark. Talk about what you see (e.g. wind pressure and the angle of other boats) and discuss your tactical and strategic options. It's good to do this early since certain mark-rounding moves (e.g. a jibe set) require some planning before you get to the mark.

Your strategy for the next leg doesn't have to be complex; it could be something simple like, "We will do a bearaway set and play the right side of the run where there is more wind." Or, "We are going to round the leeward mark and then tack to get the shift on the left." It's critical to do this *before* you round the mark because it often affects the rounding you make (see *below*).

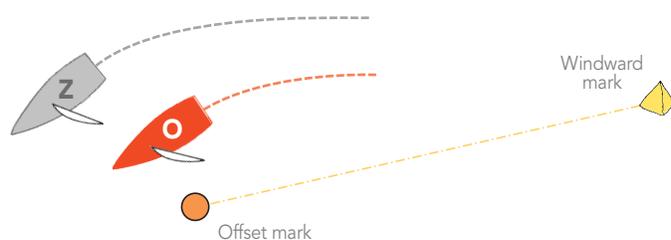


#### Use your next-leg strategy to plan the rounding

There are two important things that you must do every time you round a mark: 1) get around that mark as fast as possible; and 2) set yourself up to sail the next leg quickly. A fast rounding is not helpful if it means you must sail the wrong way at the start of the next leg. So it's key to plan your rounding with the next leg in mind. Here are two examples of how to do this (or how not to do it) when you want to jibe at the windward mark:

▲ **Above:** When planning a jibe set, approach the mark on starboard tack and slightly overstood so you will have less of a turn and a little extra speed for this maneuver. Do not approach the mark on port tack (X) or on a thin starboard layline (Y).

▼ **Below:** When planning a jibe set, position yourself to round the windward (or offset) mark on the inside, close enough to touch it. Don't round the mark overlapped on the outside (Z) since you won't be able to jibe until (if) the inside boat (O) does!



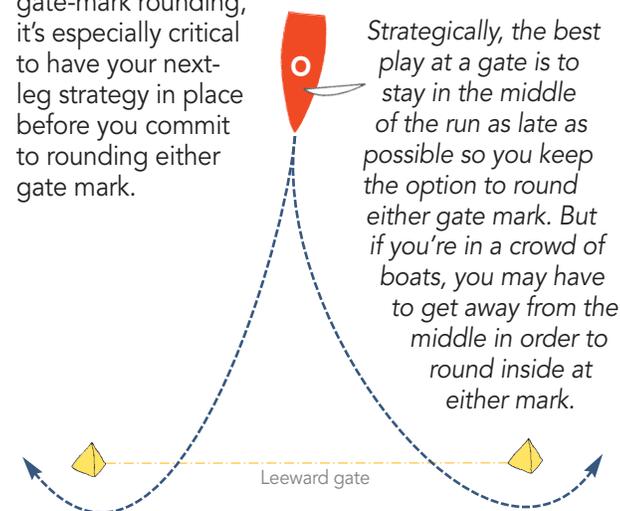
#### An 'exit strategy' is especially key at gates

Gate-mark roundings are unique and critical because you have a choice of two marks that represent two different, and opposite, strategies. After rounding the gate, you will end up either on port tack heading toward the right side of the next beat or on starboard tack heading toward the left.

The contrast in these two strategies is magnified by the lateral separation between the gate marks (usually at least six boatlengths) and by the relatively wide tacking angle for most boats. This means that boats rounding opposite gate marks start the leg fairly far apart and head rapidly in opposite directions. As a result, even small changes in the wind can have a big effect on fleet standings.

Therefore, at a gate-mark rounding, it's especially critical to have your next-leg strategy in place before you commit to rounding either gate mark.

*Strategically, the best play at a gate is to stay in the middle of the run as late as possible so you keep the option to round either gate mark. But if you're in a crowd of boats, you may have to get away from the middle in order to round inside at either mark.*



## PLAY 4: Round each mark so you are close enough to touch it.

If you want to get around a mark as quickly as possible, it almost always pays to cut close enough so you could lean out and touch the mark. This will ensure you sail the minimum distance needed to round that mark – and traveling a shorter distance usually translates into sailing the course faster.

For every foot or yard that you leave between your boat and the mark, you actually lose twice this distance in the race. That's because when you sail past the mark you have to sail that far again just to get back to the mark. So pass as close to the mark as you can without any risk of actually hitting it.

Of course, there are a few times when it's OK to round farther from the mark – like at a windward mark when there is a lot of scope on the anchorline, or at a leeward mark when you are trying to sail around the outside of a pack of boats. But generally you should round very close to each mark, even if this means you must slow down (at a leeward mark, for example) so you don't get stuck on the outside of a pinwheel of your competitors (see below).

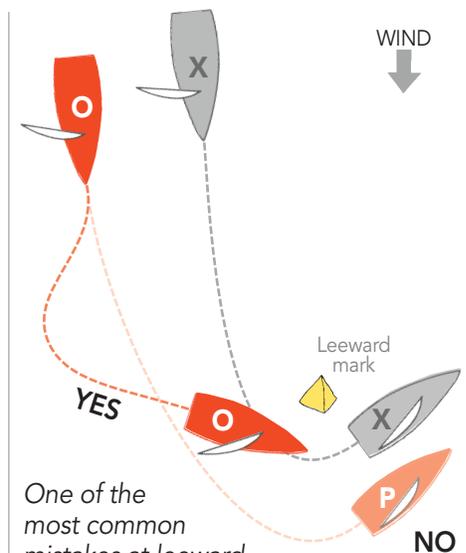
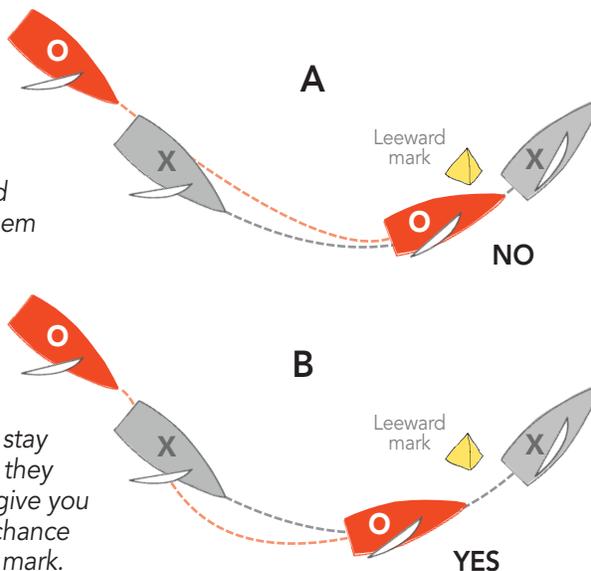


## PLAY 5: Slow down to round the mark faster.

In most situations, faster is better because the goal of racing is to get to the finish line as quickly as possible and beat the other boats. But once in a while you need to slow down. Rounding the leeward mark is a perfect example. If you round on the outside of one or more other boats, you will often be much worse off than if you slowed down and rounded right behind them (see right).

Similarly, it is often the case that the closer you are to a boat ahead, the better your chance of passing them. But when you're going around the leeward mark, closer is not always better (see below). Rounding right behind a boat creates two problems: 1) If the other boat slows unexpectedly, you may have nowhere to go except to leeward and outside of them, which is very slow; and 2) when you're right behind the other boat you'll have bad air and little chance of getting clear air by pinching above them. For these reasons, it's usually better to be half a boatlength, rather than half a yard, behind the boat ahead.

It's tempting to get as close as possible to the boat ahead (A), but at a leeward mark rounding this often backfires. The problem is that it's hard to predict what the boat ahead will do. If you catch up to them you must avoid a collision by heading up or down. If their stern has not yet cleared the mark, your only option is to bear off into their bad air, which is not good. It's much safer to stay farther behind, at least until they pass the mark (B). That will give you more options and a better chance of getting clear air after the mark.



One of the most common mistakes at leeward marks is made by boats that have an outside overlap when they reach the zone and then stay there for the entire rounding (P). This doesn't usually work well because the outside boat ends up in the bad air of the inside boat (and in the bad air of boats just ahead) without the option to tack, which is not fast. It is almost always better for the outside boat (O) to slow down so she can round right behind the boat that was inside (X) and be close enough to the mark to touch it. This gives her a much better chance for clear air and the ability to tack if she likes the left side of the beat.

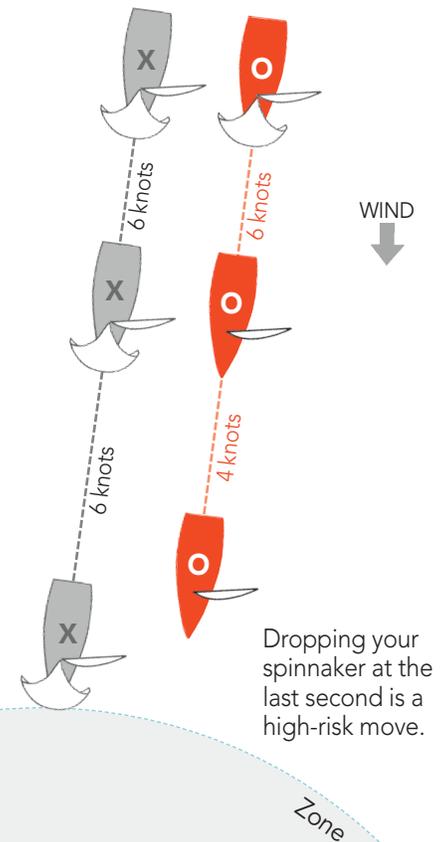
**PLAY 6: Take care of maneuvers early.**

At almost every mark, there is a certain amount of boathandling and sailhandling that is necessary in order to have a successful and fast rounding. You must get ready for a spinnaker set at the windward mark, prepare to jibe at the reach mark and take down your chute at the leeward mark. In almost all cases, it's better to do those maneuvers a little early rather than a little late.

Consider a typical leeward mark rounding. If you drop your spinnaker early, the worst that can happen is losing a boat (or two) that gets an inside overlap on you or breaks your inside overlap before the zone. But dropping too late can lead to disaster. A bad leeward mark rounding can cost you many boats.

When approaching a mark, do everything sooner than you think. Marks have a way of creeping toward you faster than you think. If you wait too long, you risk having a problem (e.g. a knot in the spinnaker halyard) that could cost you lots of time and distance. Unless you are fighting to gain or break a small overlap, the tiny bit you gain by pushing your preparations as late as possible is usually not worth the potential cost. Be conservative by preparing early.

► **By the numbers:** How much slower does a boat go without a spinnaker? That's a helpful thing to know when you're approaching a leeward mark. Often the amount you lose when you drop the spinnaker is very small, less than you think. But let's say the speed loss is two full knots. Boat X goes 6 knots (about 10 ft/sec) with her chute flying and Boat O goes 4 knots (7 ft/sec) after dropping her chute. That means O will lose a little more than 3 feet per second to X. If these boats are 24 feet long, that means O will lose one boatlength every 7 or 8 seconds (in that time X will travel about 3 boatlengths and O about 2 boatlengths). The exact numbers are not so critical – what's important is that flying the spinnaker a little longer does not help as much as many sailors think. In most cases, dropping late is not worth the risk.

**PLAY 7: After rounding the mark, delay non-essential clean-up.**

After the start, the most critical part of any race may be the minute or so just after you round each mark. That's when you're fighting to get the boat going fast in the right direction amidst a bunch of bad air and choppy waves. During this time it's critical to have 100% focus on sail trim, weight placement, steering, tactics and strategy. It is not a time when you want half the crew (or more) to be distracted by cleaning up after the mark rounding.

Once you've rounded the mark, allow your team to perform only the jobs that are absolutely essential. For example, you have to stow the spinnaker so it won't blow away and make sure the sails are clear to tack. Delay all other non-critical jobs until later in the leg when you are sailing at full speed in clear air – then have one crew at a time work on cleanup.

An early takedown can help a lot by allowing the crew to perform (almost) all necessary clean-up before your bow even reaches the mark. That way they are free to concentrate fully on speed, tactics and strategy as soon as you round the mark.

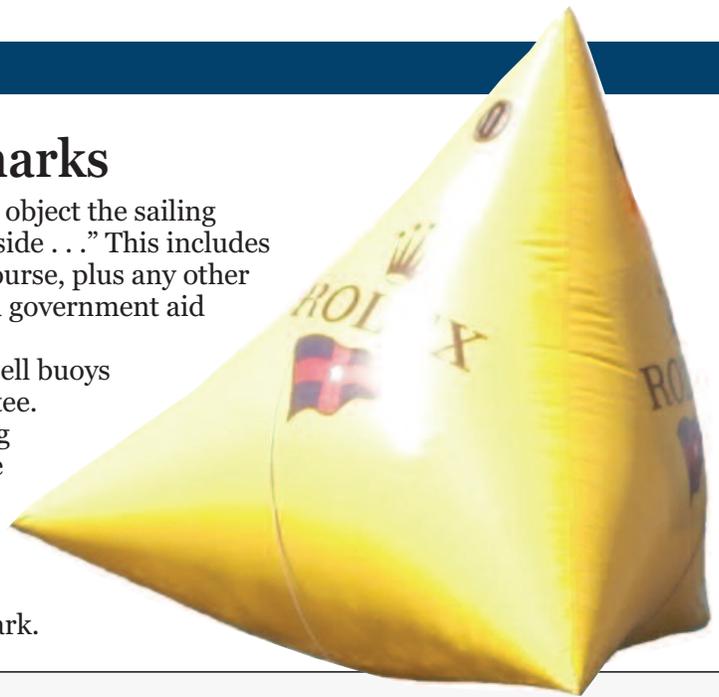


**Aim to round every mark so you are ready to sail the boat at 100% from the beginning of the next leg. It's almost impossible to do this when the crew is still cleaning up with their heads in the boat. That is a huge distraction, so take your chute down early and postpone non-important clean-up until later in the leg. The crew on the first boat above needs to settle down, and the bow person should wait to clear the halyards. The second boat obviously had a late takedown which hurt her rounding (she sailed too wide) and her speed at the beginning of this beat.**

## Be smart when you're near marks

According to the rulebook, a mark is defined as “An object the sailing instructions require a boat to leave on a specified side . . .” This includes all the normal buoys that you must round to sail the course, plus any other buoys or objects you must pass on a certain side (e.g. a government aid to navigation that must be regarded).

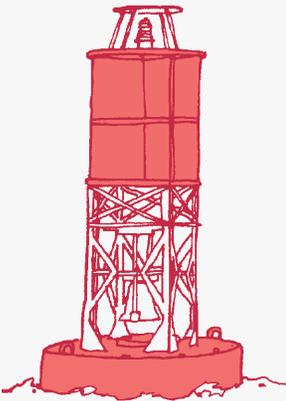
Racing marks range from huge steel government bell buoys to small soft rubber inflatables set by the race committee. No matter what they look like or are made of, rounding marks bring the entire fleet together into a small space and require sailors to have a wide range of skills in order to make successful roundings. On this page and the next are a number of mark characteristics that could affect your roundings. Keep these in mind whenever you are approaching or turning around a mark.



### PLAY 8: All you need to know about fixed (permanent) marks.

*The race committee may set a course using fixed buoys such as government aids to navigation or your club's permanent racing marks. Both share characteristics that can affect your rounding:*

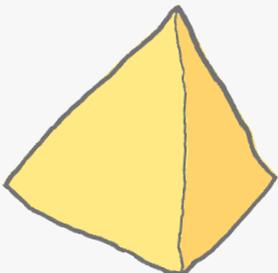
- ✓ The buoy's anchorline is usually chain that goes straight down so you can get very close without snagging it with your keel, centerboard or rudder.
- ✓ Fixed marks don't move, so they won't drift and the race committee can't change their location.
- ✓ Fixed marks are shown on charts, so on big boats you can plug their positions into your GPS.
- ✓ Since the marks are fixed, you can practice sailing the offwind-leg headings before the start.
- ✓ With fixed marks, it is difficult for the race committee to set perfect windward or leeward legs, so look for 'skewed' legs where one tack is longer than the other. When in doubt about what the wind will do, sail the longer tack first (the tack where your bow points closer to the next mark).
- ✓ Government buoys often mark shoal water, so beware of local currents (and running aground!).
- ✓ Many navigational aids have lights and/or bells, so they're easier to find in reduced visibility.
- ✓ Contact with large solid metal objects can be hazardous to your boat's health, so beware!



### PLAY 9: Watch out for inflatable (movable) marks.

*In most one-design racing and some bigger boat regattas, the race committee sets inflatable marks that can easily be moved as the wind changes. Here are some things to think about:*

- ✓ These marks spin, swing and rock a lot with the wind and waves, so be careful of getting close enough to touch them in those conditions.
- ✓ Inflatable marks are also affected by wind shadows. Watch out for a mark moving toward you when it enters your wind shadow as you pass to windward of it.
- ✓ You can't find these marks on any chart, but you can often locate them by watching where the mark-set boat goes or by looking for a 'stake boat' at the mark. Try to locate each mark visually before rounding the previous mark.
- ✓ Beware of inflatable marks dragging anchors or being dragged by other boats.
- ✓ There is often a lot of anchorline scope on the windward mark, so be careful of your foils. This is a particular concern with a falling tide (which creates more scope) and/or conditions that push the mark to the end of its anchorline (e.g. strong breeze or current aligned with the wind).
- ✓ Know the procedure for what happens when marks are moved, including the colors of the original and new marks (see rule 33 and the sailing instructions).



**PLAY 10: Round close, but not too close.**

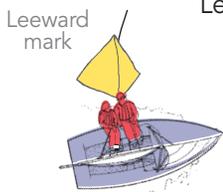
As I said earlier, you should round most marks so you are close enough to touch them. But don't get so close that you take any chance of hitting the mark – the risk of having to take a One-Turn Penalty is not worth the few extra feet you may save by getting super close to the mark. Here are a few specific situations where you must be careful:

- Leave enough room between you and the windward mark so that when you ease your mainsheet, the boom won't hit the mark (*right*).

- If the windward mark is an inflatable, watch out when you pass right to windward of it. The force of the wind usually pushes the mark to the end of its anchorline; when you blanket the mark, it may move to windward toward your boat.

- When it's wavy marks can move a lot. Heavy government buoys aren't so bad, but inflatables flop around quite a bit. Be especially wary of tetrahedrons that may suddenly rotate one of their corners toward you.

- As you turn around the leeward mark, your crew often jumps on the windward rail to hike out (*left*).



Be careful when you hike out while rounding the leeward mark – it's easy to touch the mark with your upper body if you are close to it.



Watch out for the end of your boom when turning around the windward mark, especially in heavy air when you must ease the main to bear off.

Leave a little extra room in case they lean their backs (on a one-design) or stick their feet (on a big boat) toward the mark as you pass it.

- The boats that most often touch a mark are those that call a tight layline and try to pinch up around the windward mark. Avoid this risk (and improve your mark rounding with better speed) by overstanding slightly most of the time.

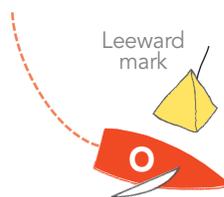
**PLAY 11: Mind the mark's anchor line.**

The last sentence of the definition Mark says, "An anchor line . . . is not part of [the mark]." This means if any part of your boat touches the mark's ground tackle you do not have to take a One-Turn Penalty. However, if you hook the anchorline and this pulls the mark into contact with your hull, that would be a problem.

The anchorline is a potential issue any time you are passing on the windward side of a mark. This happens at the starting marks, the windward mark and the marks at an upwind finish line. In all of these cases, be careful of passing the mark too closely – hooking the anchorline is not only slow but, more importantly, creates a



real possibility of touching the mark itself which requires a One-Turn Penalty. Watch out for extra scope at a mark when the mark is being pushed to the end of its anchorline by strong wind or current. You never know how much scope the mark-setter let out, nor whether he or she used a weight to hold the line down (common at the pin-end boat), so give the mark a wide berth, at least the first time around.



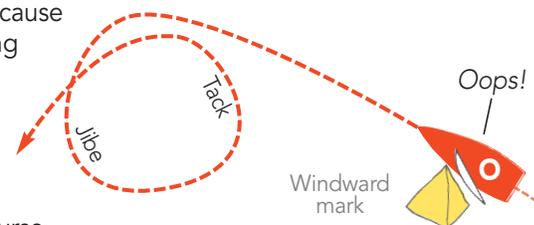
The anchorline is not a problem at the leeward mark unless you have an unusually strong current running upwind!

**PLAY 12: If you touch a mark . . .**

Touching the mark is never part of your mark-rounding plan, but it happens to everyone at least occasionally so you have to know how to deal with it. After hitting a mark, you must get 'well clear of other boats as soon after the incident as possible' before doing your penalty. Then you must take a One-Turn Penalty by promptly making one turn including one tack and one jibe. Note that you don't have to do a complete 360° turn – your turn can be less as long as it includes a tack and a jibe. Here are some more notes:

- You can begin your turn with either a tack or a jibe.
- While you are taking your penalty turn, you must keep clear of other boats that are not taking penalties.
- If another boat broke a rule and forced you to hit the mark you do not need to take a penalty. Continue with your mark rounding and protest the other boat.
- If you foul another boat and hit the mark at the same time, you only have to take the penalty for fouling the other boat (i.e. you have to do two turns, not three).
- It's OK to take your penalty turn around the mark.

This is not usually a great idea because you risk fouling other boats, but it does comply with the 'string rule' about sailing the course.



## How to pick the fastest course to round each mark

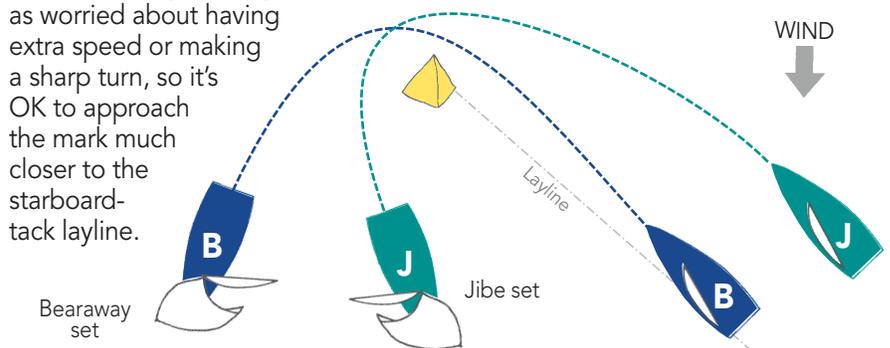
When car drivers race around an oval track, going fast is obviously important. But so are the lines they take through each curve. Do they cut to the inside and drive a shorter distance but at a slower speed? Or move up the track to the outside, going faster but covering more distance? Each curve requires a unique approach depending on a number of factors such as the traffic nearby.

The same idea applies to mark roundings. When you're trying to get around a mark quickly, the particular path you choose can make a huge difference. Unlike car racing, there are more variables that affect the perfect sailing turn, including wind velocity, waves, the type of boat you're sailing, the boats around you, your strategy for the next leg and so on. Here are some tips for picking your course around windward, reaching and leeward marks.

### PLAY 13: Two rounding paths at the windward mark

There are two basic paths you can follow when rounding the windward mark. You can go around the mark, bear off and stay on starboard tack (a 'bear-away rounding'), or you can go around the mark and jibe onto port tack (a 'jibe rounding'). Each option has advantages and disadvantages and works best in certain conditions (see page 12 for more about this).

Before you get near the mark, consider your options and decide which type of rounding you will do. Once you make that decision, your strategy will dictate how you must approach and round the mark. A jibe rounding, for example, requires a bigger turn and a more challenging spinnaker set than a bearaway rounding. So you don't want to be going slowly as you round the mark and you don't want to make a turn that is any bigger than necessary. The best way to approach this type of rounding is to overstand the mark on starboard tack (J). This will give you extra speed to carry through the jibe, and it means you won't have to make quite as sharp a turn around the mark. For a bearaway set (B) you aren't as worried about having extra speed or making a sharp turn, so it's OK to approach the mark much closer to the starboard-tack layline.



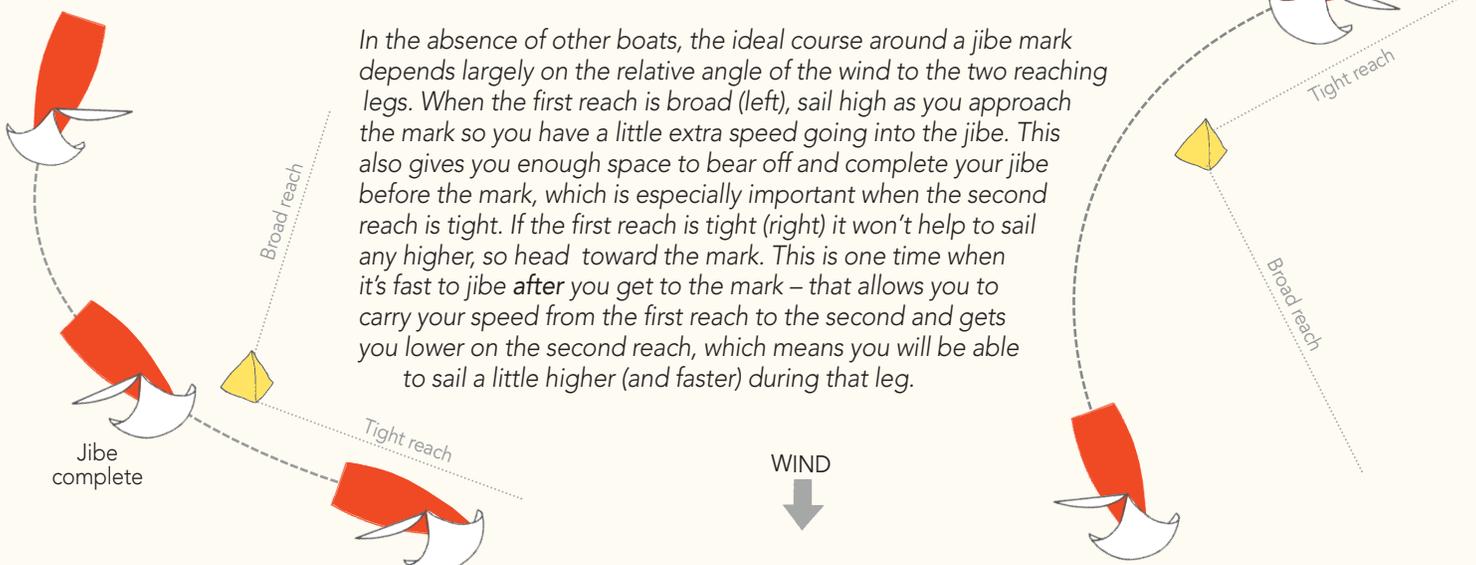
### PLAY 14: Complete your jibe before the jibe mark if possible

The jibe mark is the point at which the first reach becomes the second reach and you normally (but not always) have to jibe. The key to a fast course around any jibe mark depends largely on how broad or tight the first reach is compared to the second (see below). But there is one good, safe rule of thumb that applies at almost all jibe mark roundings:

**Complete your jibe before your bow gets to the mark.**

The key at a jibe mark is to be able to sail high right after

the mark. This is essential to prevent boats behind from rolling you to windward and for taking the 'high road' so you will be inside at the leeward mark. If you round the mark and you don't have the spinnaker pole ready to go or the crew isn't hiking out hard, you will have problems. The fix for this is easy – swing wide on the near side, complete your jibe and then cut close to the mark, ready to head up if necessary (below left).



*In the absence of other boats, the ideal course around a jibe mark depends largely on the relative angle of the wind to the two reaching legs. When the first reach is broad (left), sail high as you approach the mark so you have a little extra speed going into the jibe. This also gives you enough space to bear off and complete your jibe before the mark, which is especially important when the second reach is tight. If the first reach is tight (right) it won't help to sail any higher, so head toward the mark. This is one time when it's fast to jibe after you get to the mark – that allows you to carry your speed from the first reach to the second and gets you lower on the second reach, which means you will be able to sail a little higher (and faster) during that leg.*

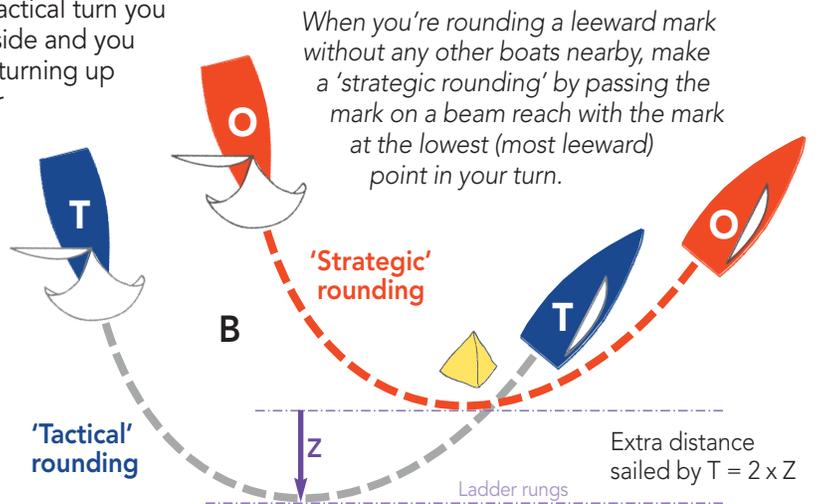
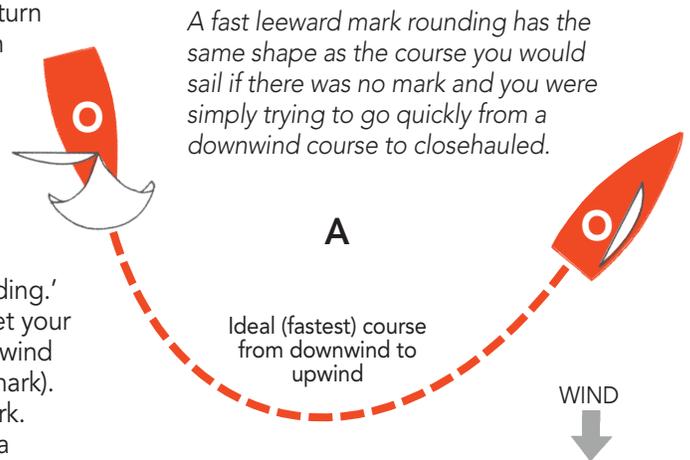
**PLAY 15: Don't sail extra distance around the leeward mark!**

Most racing sailors are taught that the fastest way to round a leeward mark is by sailing wide on the near side so they have room to turn up and be sailing closehauled as they pass the mark. This path (let's call it a 'tactical rounding') could be a good option when other boats are nearby (see bottom), but it's not the fastest way to round the leeward mark by yourself. The reason is that a tactical rounding takes you well past (to leeward of) the mark. It requires you to sail to a lower 'ladder rung' than necessary, which means you will sail a longer course.

When you are rounding a leeward mark without other boats around, the fastest course is what I call a 'strategic rounding.' The shape of this turn (see A) should be whatever curve will get you your particular boat most quickly from a downwind course to an upwind course in the existing wind conditions (in the absence of any mark). This is the curve you want to sail as you round the leeward mark.

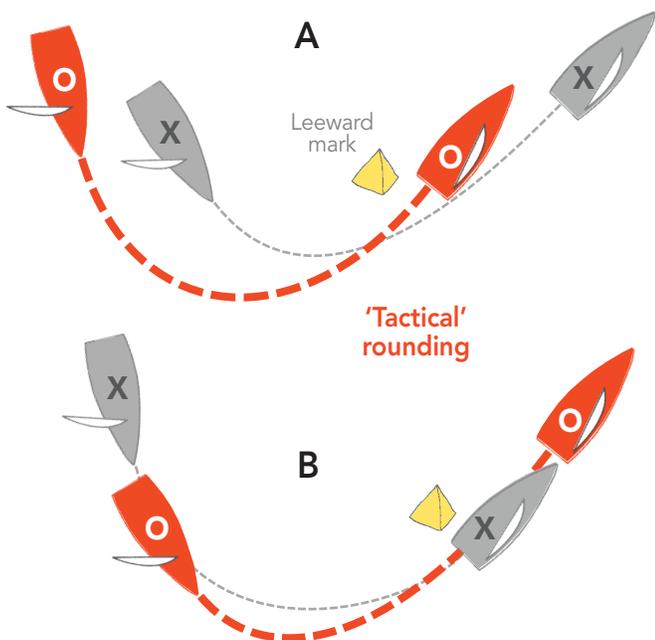
The shape of a 'strategic rounding' is not so different from a 'tactical rounding' – the huge difference is where you execute the turn relative to the leeward mark (see B). With a tactical turn you approach the mark quite a bit wider on the near side and you sail a boatlength or more below the mark before turning up and trimming to a closehauled course just as your bow reaches the mark. A strategic turn is more like a 'seamanlike' rounding – you approach the mark without being so wide, pass the mark on a beam reach with the mark at the bottom of your arc, and get to closehauled after your stern passes the mark. This is fast!

► A tactical rounding takes you Z boatlengths farther to leeward of the mark than necessary. This may be helpful in traffic, but it means the course you sail will be roughly 2 x Z lengths longer than a strategic rounding.



A fast leeward mark rounding has the same shape as the course you would sail if there was no mark and you were simply trying to go quickly from a downwind course to closehauled.

When you're rounding a leeward mark without any other boats nearby, make a 'strategic rounding' by passing the mark on a beam reach with the mark at the lowest (most leeward) point in your turn.



**PLAY 16: Sail wide and tight in traffic.**

A 'strategic rounding' (see above) is definitely the fastest way around a leeward mark when no other boats are close. But when you have one or more boats just ahead and/or behind, a 'tactical rounding' is probably the smarter choice.

A tactical rounding takes you wide on the near side of the mark so you can pass the mark very close on the far side sailing closehauled. There are two advantages of sailing this course in traffic: First, it helps you control your speed so you end up right behind the boat ahead (not outside of them) and very close to the mark (see Play 5). Second, it allows you to exit the mark as far to windward as possible. This is helpful in situations when you have:

**A. Boat just ahead** – Try to be as far to windward of their centerline as possible when you exit the mark. This gives you a measure of clear air and, hopefully, the ability to 'live' there on starboard tack until you are ready to tack.

**B. Boat just behind** – Be to windward of the other boat, if possible, for two reasons: 1) To give them bad air and slow them; and 2) To make sure they can't prevent you from tacking.

## Use all the tools you have for turning around the mark

It's impossible for a boat to round a mark without turning, so one of the keys to a fast rounding is the ability to turn your boat smoothly and efficiently. The easiest way to change a boat's course is simply by moving the tiller or wheel to alter the angle of the rudder. But this is also the slowest method because turning the rudder creates drag. It's a lot like sticking a paddle over the side of your boat and holding the flat side against the water flow – no one would ever do that while racing, yet most of us are happy to throw the helm over hard.

Since rudder movement creates drag, this should be your last choice of turning techniques. Of course, you almost always have to use some degree of rudder angle when rounding a mark, but you will keep more speed if you turn the boat as much as possible using sail trim and crew weight.

**Use your sails** – The trim of your sails can have a huge effect on where the bow of the boat wants to

go. Just ask anyone who has tried bearing off around the windward mark on a windy day without easing the mainsheet – often that is impossible. A tight mainsheet pushes the back of the boat to leeward and makes the boat want to head up. Similarly, trimming the jib harder pushes the bow of the boat to leeward and makes it easier to bear off. Easing each sail has the opposite effect. Using your sails to help turn the boat is especially important in stronger winds when moving your weight has less impact on heel.

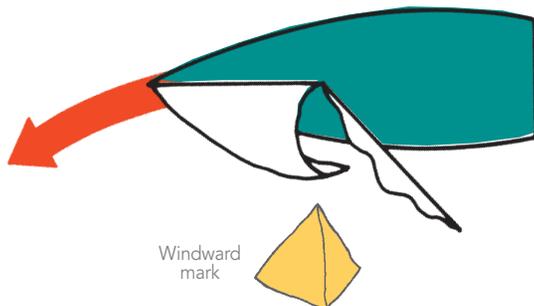
**Use crew weight** – Your boat's angle of heel also has a big effect on turning, and this is controlled largely by the placement of crew weight. Most boats turn *away from* the direction of heel. That is, if you move weight to leeward the boat will turn toward the wind; if you move weight to windward the boat will bear off. Using crew weight is especially important in lighter winds when there is not enough pressure on the sails for them to help much with turning.

### PLAY 17: Adjust your sails to help bear off around the windward mark.

When rounding the windward mark, you must bear off from closehauled to a downwind course. You can make this turn more smoothly and quickly if you trim your sails to help as much as possible, especially when it's windy. There are two things you need to do:

1) **Ease your mainsheet!** This is by far the most important ingredient of a good windward mark rounding. If the mainsail is trimmed too tight it will push your stern to leeward, making it hard to bear off. Ease the sheet all the way if necessary to minimize windward helm and make it easier to bear off around the mark.

2) **Keep your jib slightly over-trimmed.** This gives you a little extra pressure in the jib, which will help pull the bow to leeward (an overtrimmed jib also makes your spinnaker set much easier). However, if it's windy and the boat is heeling a lot to leeward, ease the jibsheet along with the mainsheet to flatten the boat, reduce helm and make it easier to turn down.

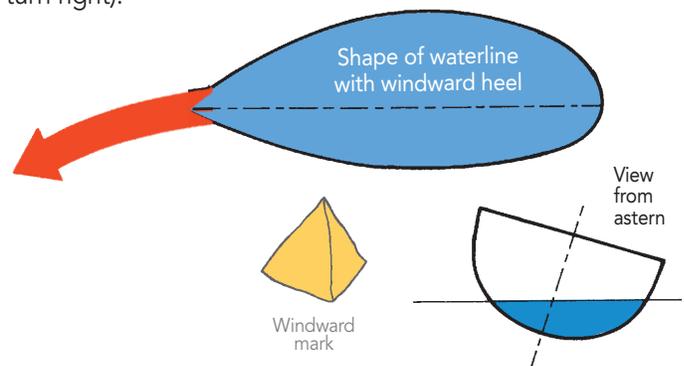


When rounding the windward mark, leave enough space so the end of your boom doesn't hit the mark. This is especially important in windy conditions where you must let your main out (often all the way) in order to get the boat to bear off.

### PLAY 18: Keep crew weight to windward to bear off around the mark.

The placement of crew weight can have a big effect on the turning ability of any boat, no matter how big. So when you are going around the windward mark, put as much crew weight as possible on the windward side to help the boat bear off. This is especially important in lighter air when heel angle has more impact than sail trim on turning.

In the ideal world you would actually heel the boat to windward as shown in the drawings below. Windward heel creates an in-the-water hull shape that makes the boat turn left (bearing off on starboard tack). However, it is often not possible to heel the boat to windward against the wind force as you turn around the mark. In that case, you still want all crew weight to windward – but your goal is simply to minimize how much the boat heels to leeward (since the hull shape that comes with leeward heel makes the boat turn right).



Don't stop hiking until you bear off around the windward mark. Crewmembers are always eager to move inboard to set the spinnaker, but that's the opposite of what you need. Keep windward (or minimize leeward) heel around the mark.



This Lightning crew is doing a great job of turning their boat around the leeward mark without using too much rudder angle (note the tiller inside the coaming). They are all leaning in a bit to allow just enough leeward heel so the boat wants to turn to windward. (Also, by not hiking until after they pass the mark they can cut closer to it without the risk of touching it with their bodies.)

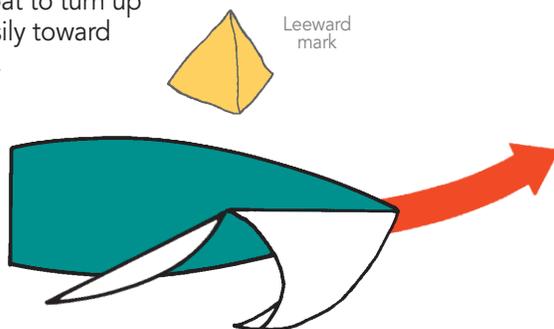
The main is slightly over-trimmed to help the boat turn up, and the jib is slightly under-trimmed to allow the bow to move to windward more easily. The spinnaker is completely put away so the crew is able to focus 100% on going fast. Without any other boats nearby, the skipper has made a 'strategic rounding' (i.e. he passed the mark on a reach and won't get to closehauled until just after rounding the mark). The result of all this? A fast rounding!

## PLAY 19: Use sail trim to help head up around the leeward mark.

It's especially important to keep speed around the leeward mark, or you will end up in bad air from boats that rounded ahead of you. Proper sail trim is key and this requires a bit of attention, especially if you have just dropped a spinnaker. The goal is to adjust your sails so they help your boat head up around the mark. Here's how to do that:

1) **Over-trim your mainsail.** Trim the main so it is always a little bit ahead of your turn (i.e. at any point in the turn the main is trimmed a little tighter than it normally would be for that point of sail). This will push the back of the boat to leeward and cause the boat to turn up toward the wind.

2) **Under-trim your jib.** Trim the jib so it is always a little bit behind your turn (i.e. at any point in the turn the jib is trimmed a little looser than it normally would be for that point of sail). It's OK to have the front part of the sail actually luffing – this will allow the bow of the boat to turn up more easily toward the wind.

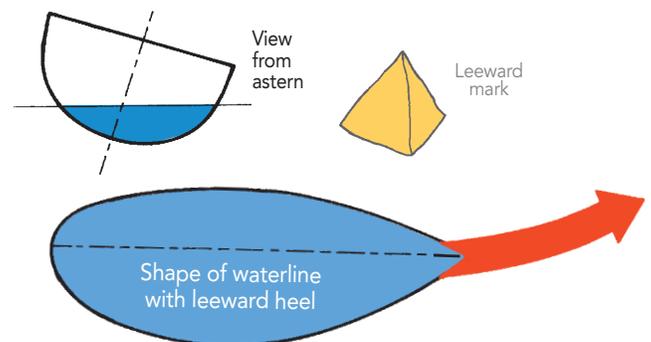


The biggest sail trim error made by crews when rounding a leeward mark is over-trimming the jib. On many boats it is easy to pull the jib in quickly, but a tight jib is the last thing you want when you're trying to head up around the mark.

## PLAY 20: Move crew weight to leeward to help head up around the mark.

While you are rounding the leeward mark, heel your boat to leeward so its underwater shape makes the boat turn up toward the wind. You want just enough heel so the boat basically turns itself in the desired radius around the mark. If you have to push the tiller or wheel to turn the rudder more, you aren't heeling the boat enough. But if you have to pull the tiller or wheel to curtail the turn (i.e. the boat would turn too much on its own), you are heeling too much (which is more likely to be a problem in breeze).

In light air you probably need to position all (or most of) your crew weight on the leeward side to generate enough heel to help turn the boat. But in heavy air you may have plenty of heel even when most of the crew is hiking to windward. The helmsperson needs to make the call about crew position based on what he or she feels in the rudder.



You want a moderate amount of leeward heel when rounding the leeward mark, but don't heel too much, especially in breeze. If you have to fight the rudder to keep the boat from turning up too much, move some weight to windward.

## Tips for the windward mark

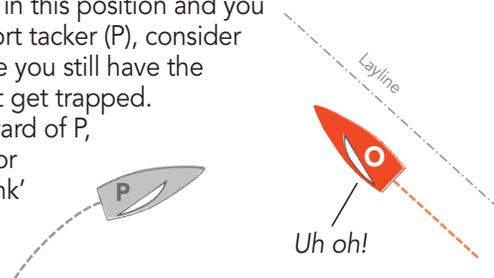
Except for the starting line, the windward mark is usually the most congested part of the course. It's the first point in the race where all the boats come together again, and for this reason it presents many potential pitfalls. Fouling another boat, hitting the mark, over-standing, under-standing, making strategic and tactical mistakes – there are many ways to lose distance and time, or to take advantage of other boats' errors. The key is managing the amount of risk you take; since the first windward mark comes early in the race, it's usually not a good idea to take too many chances there.

My basic gameplan includes three goals for rounding the windward mark: 1) Do it quickly (speed is obviously important when racing); 2) Do it cleanly (no fouls or hitting the mark); and 3) Exit the rounding in a position to implement my next-leg strategy. If I can accomplish all three objectives then I've had a successful rounding.

### PLAY 22: Beware of port tackers passing close astern near the layline.

When approaching the windward mark on starboard tack close to the layline, watch out for boats on port tack that duck (or pass close astern of) you. Those boats will almost certainly end up tacking on your windward hip – they will then be on starboard tack and will likely prevent you from tacking. If you're fetching the mark, those boats don't bother you. But if you aren't fetching, or if you're not sure, they could be a major problem.

Whenever you're in this position and you see an 'incoming' port tacker (P), consider tacking to port (while you still have the chance) so you don't get trapped. You can tack to leeward of P, right in front of her, or by doing a 'slam dunk' just after she ducks behind you.



### PLAY 21: Bearaway or Jibe?

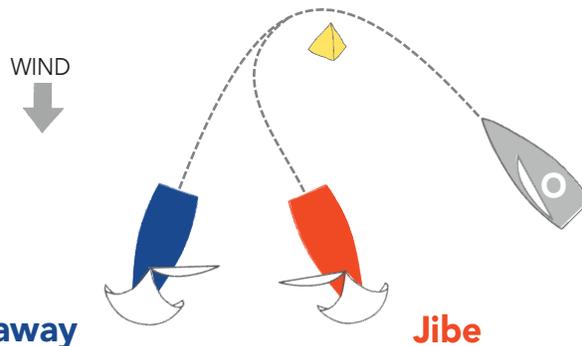
When you're rounding the windward mark and heading onto a run, you have two basic options. You can bear away and stay on starboard tack, or jibe and sail on port tack. This decision depends on your assessment of several strategic, tactical and boathandling factors.

Strategy should probably be the most important element in your decision. If there were no other boats around, which way would you go? For example, you would almost certainly do a bearaway set when starboard is the longer jibe on the run, and you would likely choose a jibe set if you could fetch the leeward mark on port tack.

Tactics (i.e. everything involving other boats) are also important to consider. A jibe set is often the best way to get clear air on the run, especially if there is a pack of boats just behind you. It also gives you the starboard-tack advantage later in the run, and sets you up to be inside at the leeward mark. However, you have to be careful when jibing because going onto port tack means you lose your rights to every boat still sailing upwind.

Boathandling is a third consideration. A jibe set is definitely tougher than a bearaway set, so you must decide whether the distance lost in the maneuver is worth it. Even if you have a good jibe set, you will still lose a little to a bearaway set. So when you are sailing with a pick-up crew or any crew who hasn't practiced this maneuver much, think twice before trying it in a critical spot.

The bottom line is that tactics often favor a jibe set, while boathandling favors a bearaway. So pay a lot of attention to what's correct strategically. If you're at all in doubt, go for the safer bearaway – you can always jibe soon after that if necessary.



#### A **Bearaway** may be smart when:

- you prefer the right side of the run (looking downwind);
- starboard jibe is longer;
- the wind is light (when doing a jibe set would be very costly);
- there aren't any/many boats right behind you;
- you approach the windward mark on port tack or going slowly;
- you're not sure which option to choose (default = bearaway);
- your crew is inexperienced;
- a lot of boats are still beating to the windward mark.

#### A **Bearaway** is not great when:

- you can fetch the leeward mark on port jibe;
- the left side of the run (looking downwind) is very favored;
- a group of boats right behind you would take your wind or force you to sail high if you stay on starboard jibe.

#### A **Jibe** may be a good idea when:

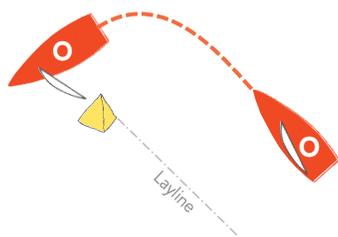
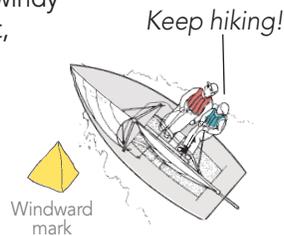
- you strongly prefer the left side of the run (looking downwind);
- you can fetch the leeward mark on port jibe;
- there is a pack of boats right behind you and you can get clear air by jibing;
- you are rounding an offset mark and you can set your chute before you get to that mark;
- you aren't using a spinnaker.

#### A **Jibe** is not a great idea when:

- the wind is light (in which case doing a jibe set is very costly);
- you approach the windward mark on port tack or going slowly;
- your crew is inexperienced;
- you like the right side of the run (looking downwind);
- starboard jibe is longer;
- there are still a lot of boats coming upwind to the windward mark (all would have right of way).

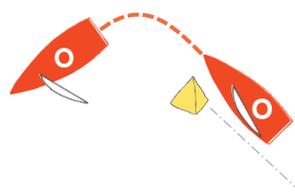
**PLAY 23: Rounding the mark in breeze.**

There are several keys to success for windy roundings at the windward mark. First, you must absolutely use your sails to steer the boat. Be ready to ease the mainsheet all the way out if necessary, and don't be surprised if you have to ease the jib sheet as well to reduce heel and weather helm. Keep maximum weight on the rail – don't let your crew go in to prepare the spinnaker until the boat bears away and the heel angle is under control.

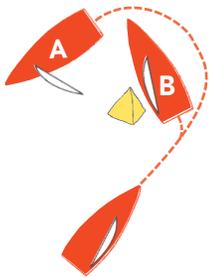


You will definitely have to ease your main out pretty far to bear off around the mark. If possible, overstand the mark a little so you will have enough room to turn down without hitting the mark with the end of your boom.

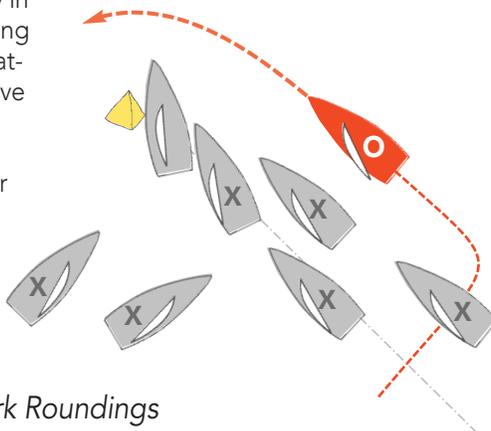
If you can't (or don't) overstand the mark, you may have to keep sailing closehauled until your transom is at the mark. Then dump your mainsheet and turn down.



Tacking around a windward mark in breeze is challenging. You can't just spin around the mark because that would require dumping your main out of the tack and your boom would likely hit the mark. You have to go a little farther past the mark and tack (A), or tack at the mark and sail a little high (to keep the boat flat) until your stern is at the mark and you can bear off (B).

**PLAY 24: In a crowd, overstand the mark.**

When rounding the windward mark think about risk management. There are many ways to lose a lot of distance here, so be conservative unless you really need to make a big gain. One of the best ways to reduce your exposure to risk is by overstanding the mark, especially in a big pack. By coming in to the mark a boat-length or more above the layline, you can avoid most of the problems that occur when boats get hung up on the mark or stuck trying to get around it.

**Windward mark checklist**

*There is usually a lot happening when the fleet converges at the windward mark. Here are a few things to remember amidst the chaos before and during your rounding.*

**Before the rounding**

- **Confirm correct mark and rounding direction.** How many times have you sailed toward the wrong mark or rounded the right mark in the wrong direction? Confirm these 'minor details' with the rest of your crew as far from the windward mark as possible.

- **Get a visual ID on (or a bearing to) the next mark.** As you get close to the first mark, have someone try to locate the second mark visually. Is it where you expected? Are there any visual aids (e.g. stake boat, land sight) to help you find it again after the rounding? What is the compass bearing to that mark?

- **Talk through your strategy for the next leg.** Before you make your final approach to the windward mark, know your strategy for the next reach or run. One major goal for the rounding is to exit the mark in a place where you can implement your next-leg strategy.

**During the rounding**

- **Watch out for the anchor line.** It's OK to touch the mark's ground tackle, but it's not OK if you hook the anchorline and pull the mark into the side of your boat. Beware of scope coming off the windward side of the mark, especially in current and waves.

- **Check current on the mark.** Rounding the mark is a great time to check the current speed and direction in this part of the course.

- **Note the mark's GPS position.** If you're racing a big boat and you are coming back to this mark later, make sure to punch in the mark location as you are rounding it.

- **Keep your head out of the boat.** At crowded mark roundings (and even some that aren't so crowded), it's easy to 'lose sight of the forest for the trees.' Many sailors get so fixated on the boat(s) right next to them that they lose track of the big picture. Stay alert in order to anticipate the problems and opportunities that often come your way at the windward mark.

- **Is there a change of course?** The race committee doesn't usually change the course at the windward mark, but it could happen.

## Tips for the leeward mark

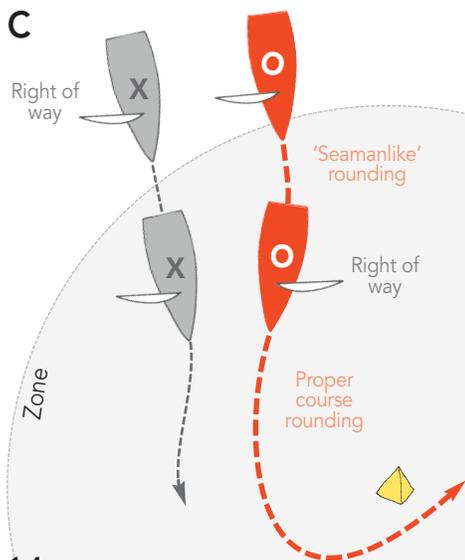
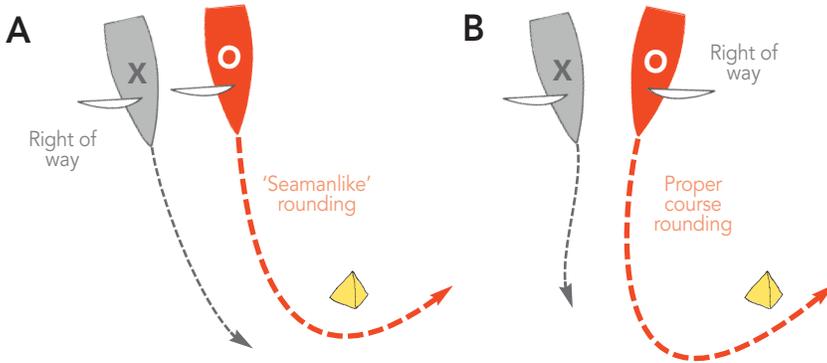
The leeward mark rounding may be the part of the race course where boats lose (or gain) more positions than anywhere else. Especially when spinnakers are involved, it's easy to mis-judge the time and space needed to make an optimal rounding. As a result, boats often have a chaotic transition from downwind to upwind. If you can avoid being one of them, there are lots of opportunities to pass boats. Here are some ideas for how you can do that.

### PLAY 25: Approach the mark with the right of way if possible.

When you're entitled to mark-room at the leeward mark (*Boat O in all the situations below*), you will be able to make a better rounding if you also have the right of way. That's because an inside boat without the right of way (*Situation A*) can only take as much room as she needs to round the mark in a *seamanlike* way. She cannot sail as wide as she may want to position herself tactically against nearby boats.

An inside boat that has the right of way, on the other hand, can take as much room as she needs to sail her proper course around the mark. This means she has the option to sail any course she wants up to (and including) a "swing wide, then tight" rounding (*Situation B*).

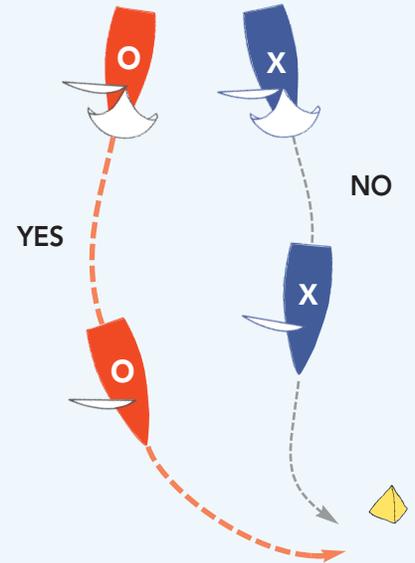
In many cases, it's easy for O to gain the right of way (and more mark-rounding options) simply by jibing into a position where she's a starboard-tack or leeward boat. Of course, when she gains the right of way she must initially give the other boat room to keep clear (see rule 15).



It's possible to gain the right of way and improve your mark-rounding options even if you entered the zone as the give-way boat. In Situation C, O has an inside overlap when she enters the zone, so O is entitled to mark-room. X initially has the right of way, so O may take only enough room to make a 'seamanlike' rounding. But when O jibes inside the zone she gains the right of way. From that point on she can sail her proper course around the mark!

### PLAY 26: Position yourself so you can head UP after taking down your spinnaker.

When you're approaching the leeward mark with a spinnaker, use the chute to sail wide of the mark so you can head up after you take it down. Too many times I see boats drop their spinnaker and then bear off to make room for rounding the mark (X). But it doesn't make sense to go low and slow without a chute. If you will need to bear off for the rounding, do this while you still have the spinnaker flying (so you can maintain speed). Once you drop it, you should be in a position (O) where you can start heading up – this is needed to keep your speed without the spinnaker.



JH Peterson photo

**PLAY 27: Play to the inside.**

When you're rounding a leeward mark to port, it's strong to approach the mark on starboard tack near the starboard-tack layline. This gives you the right of way and also means you will be inside (entitled to mark-room) when you get to the zone. Therefore, if all other factors are equal, favor the left side of the run (looking downwind). This tactic works best on short runs (where strategy is not such a big factor) and on longer runs as you get closer to the bottom mark. But don't over-value this move; playing the wind shifts and pressure is often much more important than being inside on starboard tack.

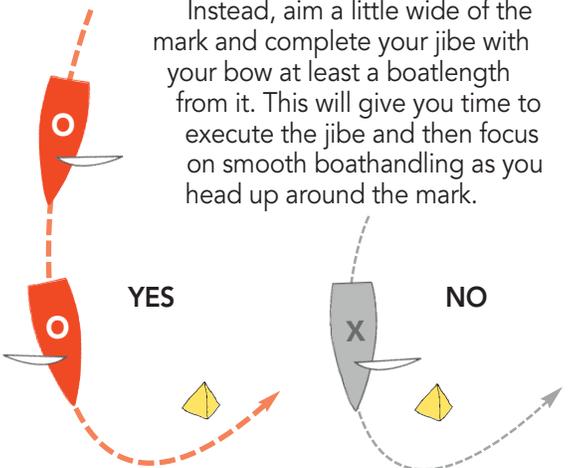


**PLAY 28: Jibe before you turn to round the mark.**

Many leeward marks require a jibe as part of their rounding. If you are leaving a mark to port, for example, and you approach it on starboard tack, you will have to jibe around the mark to head up to closehauled on port tack.

In almost all situations, it is best to avoid jibing right at the mark. In other words, try not to jibe in the middle of your turn around the mark (B). A fast rounding is hard enough without doing a jibe at the same time.

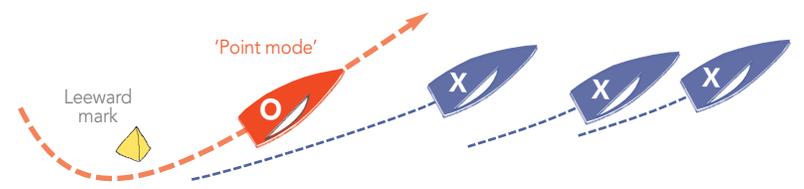
Instead, aim a little wide of the mark and complete your jibe with your bow at least a boatlength from it. This will give you time to execute the jibe and then focus on smooth boathandling as you head up around the mark.



**PLAY 29: Choose the best 'exit strategy.'**

When you round the leeward mark, it's important to position yourself so you can 1) get clear air, and 2) follow your strategy for the next beat. This is not always easy to do, especially when there is another boat (or a few boats) just ahead of you. Basically, you have three options:

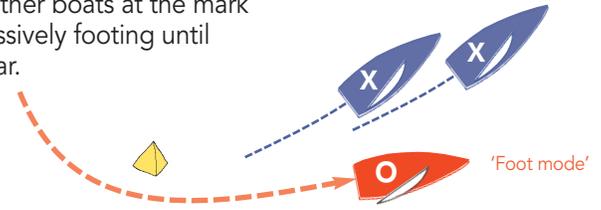
**Pinch and 'live' on port tack** – This is usually your best option when you're not sure which way you want to go on the beat. It requires an early spinnaker takedown so you are 100% ready to go fast upwind when your bow reaches the mark. Then you have to execute a good tactical rounding where you swing wide and cut very close to the mark, with a gap between you and the boat ahead. Once you get past the mark, shift into 'squeeze' mode and try to climb at least slightly to windward of the boat(s) ahead of you. This will hopefully allow you to 'live' on the hip of those boats as long as you want, or at least until you can tack and clear all the boats still coming down to the leeward mark.



**Round and tack** – When you are serious about the left side of the beat, tacking soon after your rounding is obviously the way to go. If you come into the mark with good speed, you may be able to tack right around it. Usually, however, it's better to wait a few lengths so you are cleaned up and clear of the boats coming downwind. Just make sure you have a tight mark rounding (so the boat behind you doesn't get up on your hip and pin you from tacking), and then put your bow down slightly (by aiming just below the boat in front of you) to build speed before you tack. Tacking is also a good option if you want to go right but you can't hold your lane on port tack and you need a short hitch to clear your air.



**Foot off below other boats on port tack** – Another option at the leeward mark is to bear off below the boat(s) in front of you and try to get your wind clear in front of them. This tactic works best on a relatively long beat when you really like the right side. Do not try this if you are thinking of tacking any time soon, if the beat is too short to make up the distance you will lose initially, or if you cannot get clear air by reaching off (i.e. if there is a string of boats ahead of you on port tack). Plan ahead for this rounding by staying on the outside of other boats at the mark and then aggressively footing until your wind is clear.



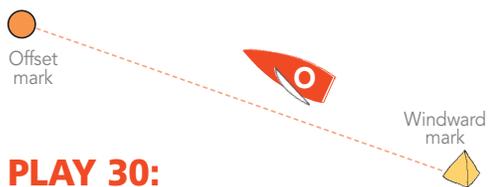
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**PLAYBOOK: Mark Roundings** **Offset marks**



**PLAY 30:**  
**Look ahead at the offset leg.**

The offset mark at the top of the course is normally set about 90° to the windward-leg axis, which means the offset leg is typically a beam reach. However, current, windshifts, dragging anchors and other factors can all change this. So look ahead as you approach the windward mark and be prepared for anything.

Sometimes, for example, the offset mark is so far upwind (above) that you may need to overstand the windward mark simply to fetch the offset mark! In that case you don't want to round the windward mark and bear off as you normally do. Other times (below) the offset leg is quite broad and you need to be ready to set your chute around the windward mark.



**PLAY 31: Avoid the 'dead zone' below the offset leg.**

An offset mark at the top of the beat often creates an area of very little wind to leeward of the offset leg. That's because boats on the starboard layline and on the offset leg create a 'snow-fence effect' that blocks a lot of the wind from getting through. This is especially true in lighter air when it takes a long time for disturbed wind flow to re-establish itself and, as a result, wind shadows are particularly bad.

Therefore, think twice about doing a jibe set around the offset mark. Though it's relatively easy to perform this maneuver (because you approach the offset mark on a reach with speed), jibing there can be risky. In light air you will have to sail high for speed (on port tack after jibing), and this takes you right up underneath all the boats behind you. Instead, consider an easier bearaway set and postpone your jibe for at least a few boatlengths until you can jibe and miss sailing through the worst part of the dead zone.

