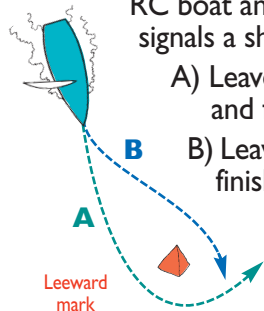


BRAIN TEASER

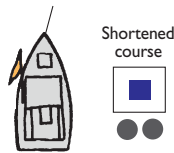
Shortened course

Here are two questions about how to finish a shortened course:

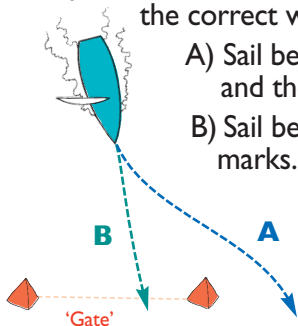
1) You are leading a light-air race as you sail downwind on the first run of a twice-around, windward-leeward course (leaving marks to port). As you approach the leeward mark, the RC boat anchors (as shown below) and signals a shortened course. Should you:



- A) Leave the leeward mark to port and finish upwind; or
- B) Leave the mark to starboard and finish downwind?

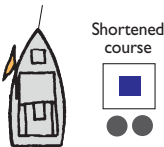


2) The situation is exactly the same as above except the leeward mark is a gate. Which is the correct way to finish the race?



- A) Sail between the RC boat and the closest gate mark; or
- B) Sail between the two gate marks.

Answers on page 16.



JH Peterson photo

Everything you've always wanted to know about

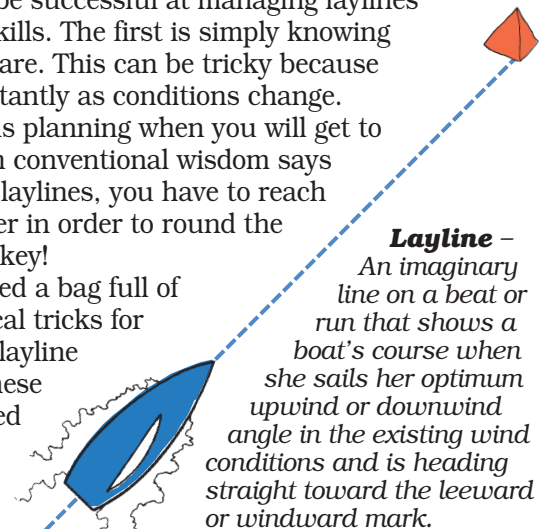
LAYLINES

A layline seems like such a simple thing – a dotted pathway on the water that leads you straight to the next mark. But dealing with laylines while you are racing is not always so straightforward. When sailors approach the edges of the course, too often they overstand the next mark, understand it, miss windshifts, get stuck in traffic or end up in bad air. As a result, it's common to see boats make race-winning gains (and race-losing losses) near laylines.

If you want to be successful at managing laylines you need several skills. The first is simply knowing where the laylines are. This can be tricky because laylines move constantly as conditions change.

A second skill is planning when you will get to the layline. Though conventional wisdom says to keep away from laylines, you have to reach them sooner or later in order to round the mark, so timing is key!

Finally, you need a bag full of strategic and tactical tricks for handling common layline situations. All of these things are discussed in great detail throughout the rest of this issue.



Layline – An imaginary line on a beat or run that shows a boat's course when she sails her optimum upwind or downwind angle in the existing wind conditions and is heading straight toward the leeward or windward mark.

ISSUE # 118

Laylines

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Factors that influence layline position

A layline is the path you would sail, when steering your optimal upwind or downwind course, to get around the next mark on one tack. We all know that laylines are invisible, of course, but many sailors don't realize how much (and how often) laylines move around.

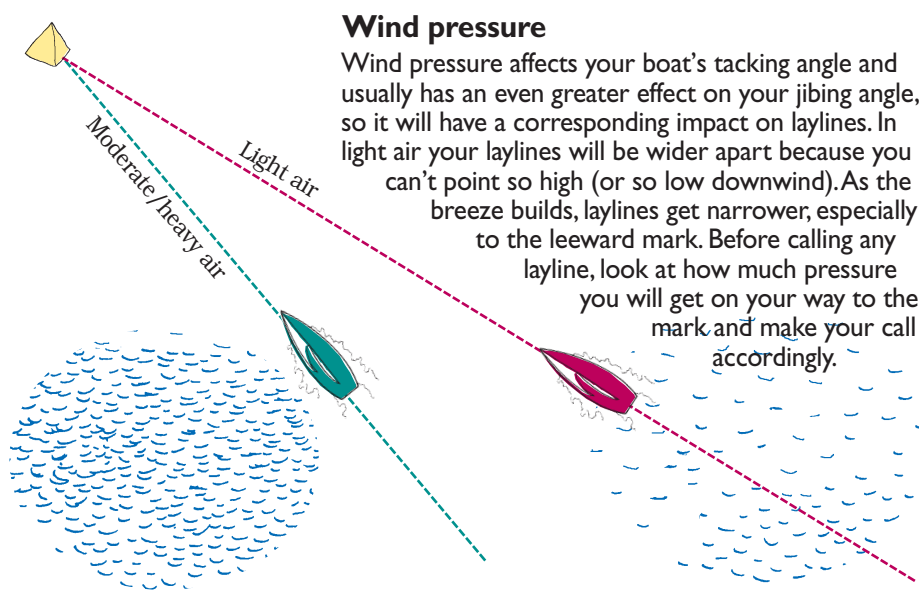
Laylines are a function of many variables such as wind direction, wind speed, sea state and current strength. Therefore, whenever there is a change in any one of these things (and they do change every moment), your layline will move. In order to make good layline choices, it's important to keep your head out of the boat and to understand how all these variables may influence your layline calls.

Boat type – Laylines are, first and foremost, a function of your boat's tacking and jibing angles. When you are sailing a narrow-winded Etchells, for example, you will obviously get to the layline sooner than you will in an Optimist, which tacks through about 90°.

If you haven't done so, make up a chart for your boat that lists wind velocity and your corresponding upwind and downwind angles. Combine this with tacking lines (see page 5) to help make layline calls in any wind condition.

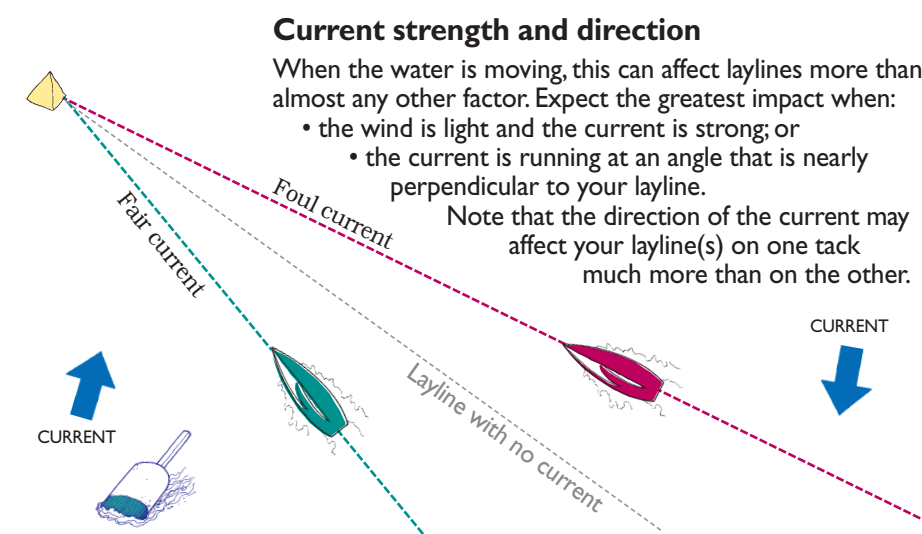
Wind direction – The wind direction is almost always changing, at least a little, and this has a direct impact on the location of all your laylines. For example, if the wind direction shifts 5° to the right, then the laylines will also move by 5°. On a shifty day, you must be tuned in to the windshift pattern in order to make good layline calls.

Leeway – One small influence on laylines is leeway (i.e. the angle between the course you're steering and your course made good through the water). Every boat makes at least a little leeway because of the sideways push by wind and waves. This will be greatest (maybe 3° or 4°) in strong wind and big waves.



Wind pressure

Wind pressure affects your boat's tacking angle and usually has an even greater effect on your jibing angle, so it will have a corresponding impact on laylines. In light air your laylines will be wider apart because you can't point so high (or so low downwind). As the breeze builds, laylines get narrower, especially to the leeward mark. Before calling any layline, look at how much pressure you will get on your way to the mark and make your call accordingly.

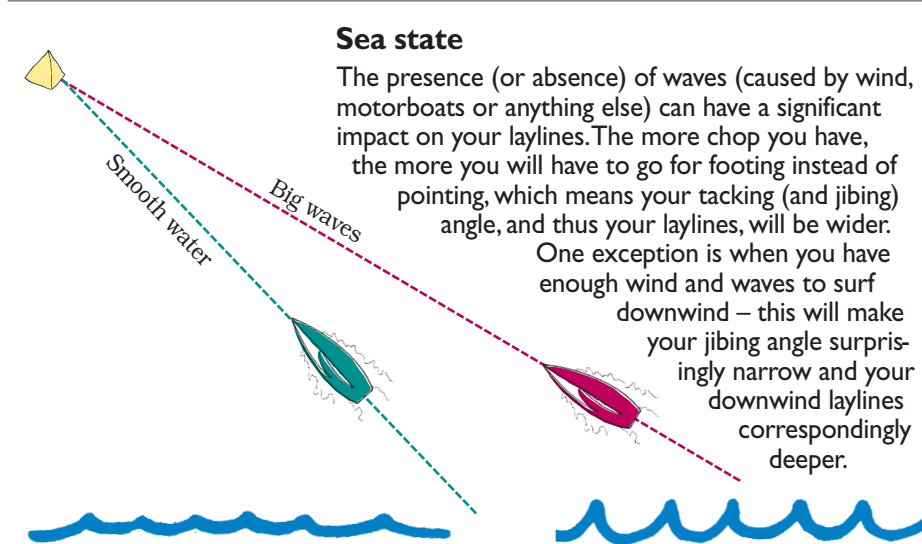


Current strength and direction

When the water is moving, this can affect laylines more than almost any other factor. Expect the greatest impact when:

- the wind is light and the current is strong; or
- the current is running at an angle that is nearly perpendicular to your layline.

Note that the direction of the current may affect your layline(s) on one tack much more than on the other.



Sea state

The presence (or absence) of waves (caused by wind, motorboats or anything else) can have a significant impact on your laylines. The more chop you have, the more you will have to go for footing instead of pointing, which means your tacking (and jibing) angle, and thus your laylines, will be wider.

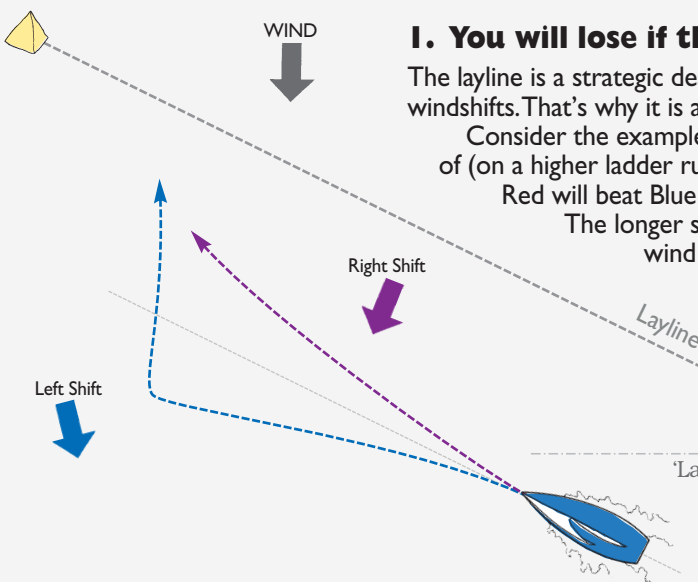
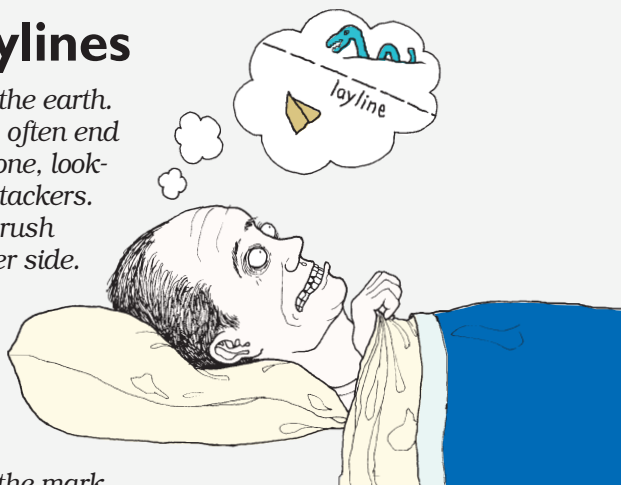
One exception is when you have enough wind and waves to surf downwind – this will make your jibing angle surprisingly narrow and your downwind laylines correspondingly deeper.

Three good reasons to fear laylines

Some sailors treat laylines as if they represent the edge of the earth. These boats are so intent on staying off laylines that they often end up approaching the windward mark on port tack inside the zone, looking (usually unsuccessfully) for a gap in the line of starboard tackers.

Other sailors are oblivious to the potential dangers. They rush toward laylines like there is always a miracle puff on the other side. Not surprisingly, they are usually the boats that come reaching in to the windward mark.

The truth is somewhere in the middle. The layline is not always a bad place to be. In fact, there are times when you can gain by getting to the layline early or even overstanding (see pages 14-15). However, the rule of thumb is that you should generally stay off laylines until you are fairly close to the mark.



1. You will lose if the wind shifts in either direction.

The layline is a strategic dead-end because once you're there you can no longer play windshifts. That's why it is a bad idea to get to the layline early, especially in shifty air.

Consider the example below. When the Red boat gets to the layline she is ahead of (on a higher ladder rung than) the Blue boat. As long as the wind doesn't shift, Red will beat Blue to the windward mark. However, Red is pretty far away.

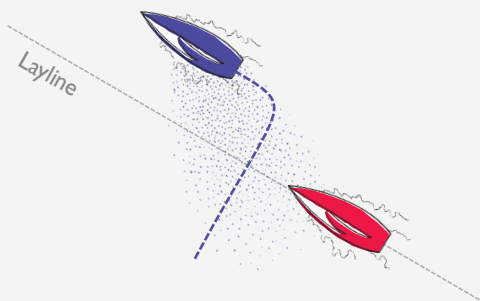
The longer she has to sail on the layline, the more likely it is that the wind direction will change. And no matter which way the wind shifts, Blue will gain.

If the wind backs to the left, for example, both boats are headed to the left, for example, both boats are headed and Blue will gain because she is closer to the shift – she may be able to tack and cross Red before the mark.

If the wind veers to the right, it should be a gain for Red, but Blue may get lifted enough to lay the mark and round ahead!



JH Peterson photo



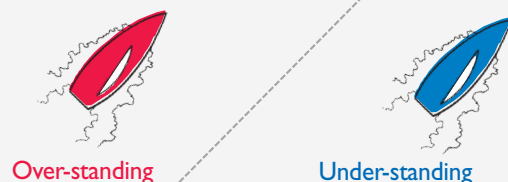
2. You may end up in bad air.

Unless you are in first place, one very good reason to stay off the layline is to reduce your risk of sailing in bad air. You know the boats ahead of you will have to tack on the layline sooner or later (and they may be looking to tack on your breeze). If you end up in their wind shadow you will have two bad options: 1) sail slowly all the way to the mark; or 2) make two costly (probably down-speed) tacks to clear your air.

3. You will sail extra distance.

The sooner you reach a layline, the more likely it is that you will have to sail extra distance compared to boats that get to the layline later. That's because it is difficult to call a perfect layline from far away (and even if you do call it perfectly the wind will probably change before you get to the mark).

The odds are overwhelming that you will either overstand the mark (which means you will have sailed extra distance) or understand the mark (which will require two additional tacks).





TECHNIQUE

Six ways to identify a layline

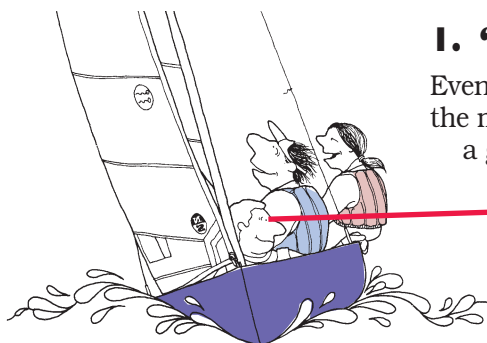
Before you round any mark you have to get to the layline, so it helps a lot to know where the layline is. To avoid overstanding or understanding (and losing time or distance), find a good method for making consistently accurate layline calls. Here are some tips:

- **Avoid long-range laylines.** The easiest way to improve your layline calls is by getting closer to the mark before you have to make them. This isn't always possible, but if you reduce the average distance at which you hit the layline you will have better calls (and better results due to less time spent on laylines).

- **Use more than one method.** Use two (or more) different layline methods as a check on each other. If

two methods produce the same layline, this gives you confidence in your call. If they produce different laylines, use a third method and try to understand why the first two disagreed.

- **Be aware of changing conditions.** As we said before, the variables that affect your laylines (wind, waves, current) are always changing. The best way to incorporate these is to be very aware of what's happening on the race course at the moment when you make your layline call. For example, do you expect the wind to increase, decrease or remain the same as you sail to the mark? It's hard to make a good layline call without considering this kind of information.



1. 'Eyeball' the mark.

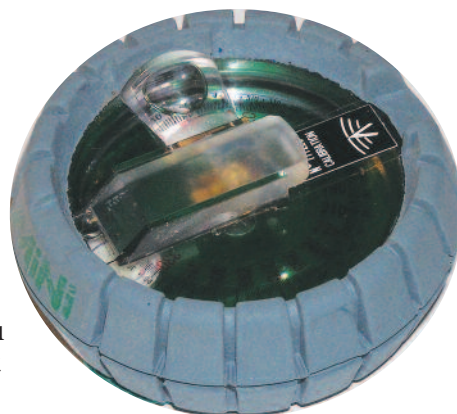
Even if you are using another layline technique, you should always 'eyeball' the mark (just as you should 'eyeball' every other race-course decision). Taking a good look around helps you consider all relevant factors and prevents silly mistakes. Many sailors have a great feel for laylines simply by looking at the mark, so don't be afraid to rely on this. Also, many boats have a tacking angle of roughly 80° or 90°, so you're at the layline when the mark is slightly forward of abeam. It's not a bad idea to combine this with an objective approach like using a compass bearing or tacking line.

2. Use a compass bearing.

The use of a compass gives you a more objective and consistent approach to calling laylines. Take note of your average heading on each tack while you are sailing up the beat. Then, while you are looking at the mark, use your heading from the opposite tack to judge your layline.

A compass mounted on your boat's centerline is great for getting your heading on each tack, but it's usually not so good for sighting the mark abeam. The best tool for this is a hand-bearing compass, which can be worn around the neck of the tactician or other crewmember.

Remember that a compass layline is based on times in the past when you were sailing on that tack. Conditions will probably be at least a little different when you make a layline call, so don't blindly use the old compass number.



3. Use a range on shore.

Once in a while it's possible to use a range with an object on shore to identify the windward (or leeward) mark laylines. However, you need a few conditions in order to make this work:

- A shoreline behind the windward or leeward mark!
- A chance to sail up the course and get a layline range before you are racing.
- A relatively steady wind. A range on shore will give you a very precise layline that is accurate when you get it before the race. But if conditions change very much, that layline sight will be worthless.



A red dashed line extends from the windward mark towards the right, representing the layline.





JH Peterson photo

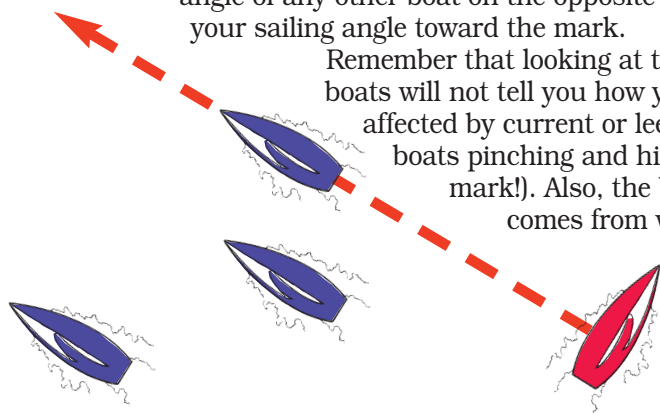
The best way to call a layline is to avoid getting near the layline until you are relatively close to the mark. If you try to make the call from far away, you risk overstanding by a lot (boat on far left) or ending up in bad air (second boat on starboard tack from right). The boat on port tack (with USA on top of its mainsail) crossed behind several starboard tackers and should have used these boats to help her judge the layline, but she has overstood and lost a lot of distance.

4. Use the angle of other boats.



The angles of other boats tell you a lot about the wind in which they are sailing, so keep a close eye on them while racing. The easiest way to make a layline call is by looking down the centerline of boats on the opposite tack as you cross behind them near the layline. You can also use the angle of any other boat on the opposite tack to help estimate your sailing angle toward the mark.

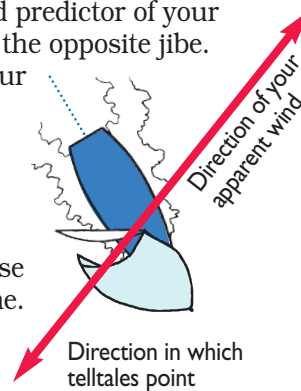
Remember that looking at the angle of other boats will not tell you how your layline will be affected by current or leeway (unless you see boats pinching and hitting the windward mark!). Also, the best information comes from watching boats that are identical to yours, of course, because they have similar tacking angles.



6. Use your telltales.

All the techniques on these pages work for both upwind and downwind laylines – except for this one which works only on runs. As explained in S&S Issue 116, the angle of your telltales or wind pennant is quite a good predictor of your heading on the opposite jibe. So when your telltales point at the leeward mark, this means you are very close to the layline.

Angle on opposite jibe

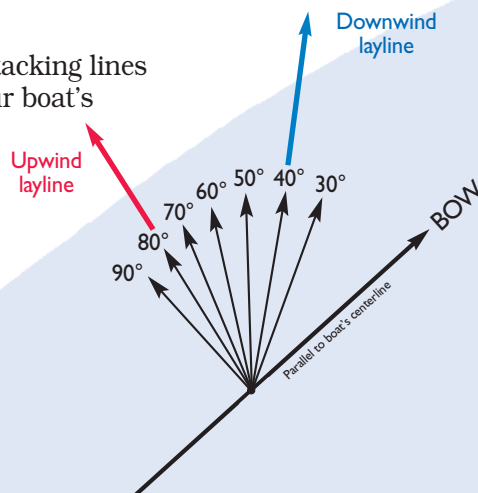


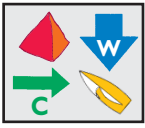
5. Use “tacking lines.”

This is my favorite technique on boats that are big enough to fit tacking lines on their deck. To make tacking lines work, you need to know your boat’s tacking angle in the existing wind and sea conditions. You can determine this by recording your headings on each tack and finding their difference. Then sight along your tacking lines on the windward side to identify when you’re on the layline.

For example, if you tack through 80°, your heading on the opposite tack will be 80° from your current course. When the 80° tacking line is pointing at the mark, you are on the layline to the windward mark.

Tacking lines also work for downwind laylines. If your jibing angle is 40° use that line on your leeward side to sight the leeward mark.





STRATEGY

Five familiar layline dilemmas

There are certain scenarios that always seem to play out when you get near a layline. Somebody tacks on you or you have the chance to tack on somebody. The wind shifts so you are no longer on the layline. You have to make a choice about whether to do two more tacks or sail straight, but slowly, toward the mark.

In each of these situations, the decision you make usually has a significant consequence – it leads to big gains or big losses. And each dilemma is complicated by the fact that often, due to the nearby presence of other boats, you have to make a decision quickly.

Of course, the best way to resolve most of these common scenarios is to avoid them in the first place. But when that doesn't happen, here are some thoughts on how best to handle them.



What should you do when you are on the layline pretty far from the mark and you get lifted? Should you take all the lift and put 'money in the bank'? Take some of the lift and split the difference? Or go full speed straight at the mark? (See Dilemma 1.)

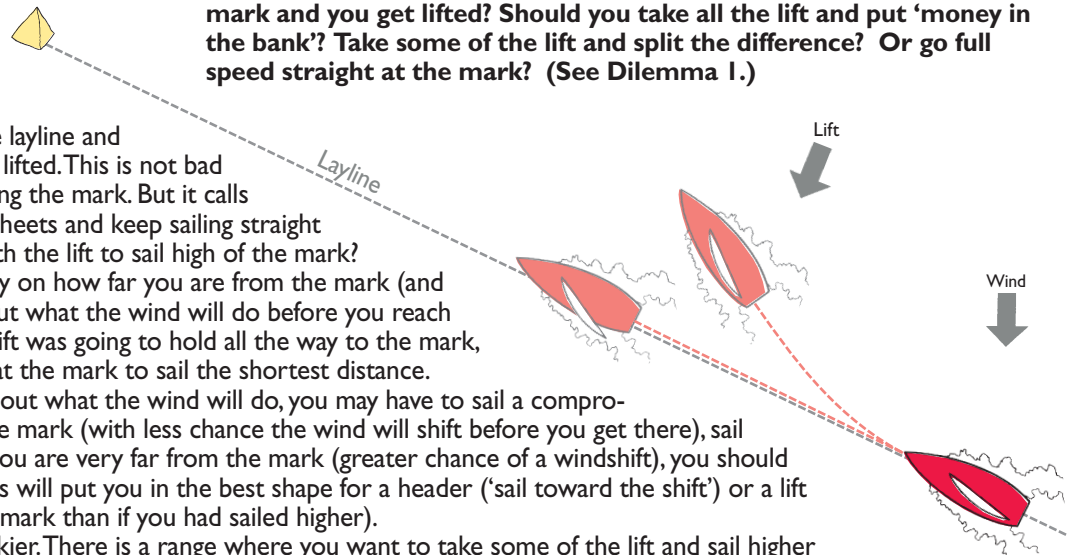
1. Take a lift or aim at the mark?

Sometimes when you are on the layline and aiming right at the mark you get lifted. This is not bad because at least you're still making the mark. But it calls for a decision: Should you ease sheets and keep sailing straight toward the mark, or head up with the lift to sail high of the mark?

The answer depends primarily on how far you are from the mark (and therefore how sure you are about what the wind will do before you reach the mark). If you knew that the lift was going to hold all the way to the mark, you would ease sheets and aim at the mark to sail the shortest distance.

Since you're never certain about what the wind will do, you may have to sail a compromise. If you are quite close to the mark (with less chance the wind will shift before you get there), sail straight and fast to the mark. If you are very far from the mark (greater chance of a windshift), you should also sail straight to the mark. This will put you in the best shape for a header ('sail toward the shift') or a lift (you'll have a faster angle to the mark than if you had sailed higher).

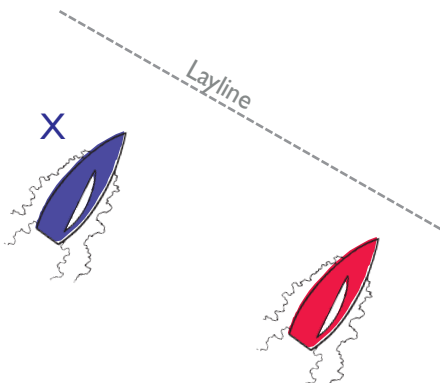
The middle distances are trickier. There is a range where you want to take some of the lift and sail higher to put some 'money in the bank' in case you get headed. This may not turn out to be the fastest way to get to the mark, but think of it as 'insurance' to make sure you won't have to make two more tacks.

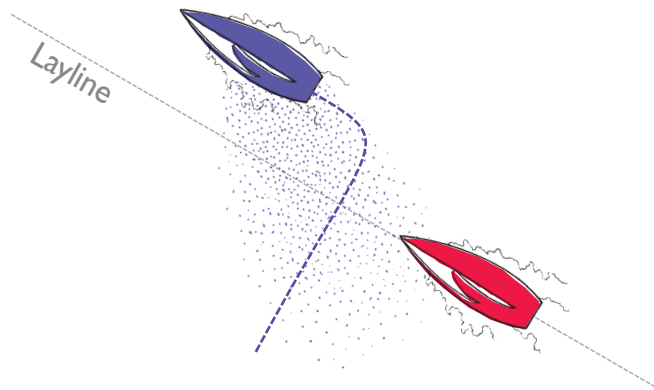


2. Tack first or wait for the windward boat to tack?

We've all been here before – sailing closer and closer to the layline, waiting for a boat (X) on our windward side to tack and feeling we have lost control. This dilemma seems to have two possible outcomes, both negative. We could tack first, but X would probably tack too (giving us a choice of bad air or two more tacks); or we could wait for X to tack, but then we would be overstanding the mark and losing to every other boat in the fleet.

The best solution is probably to rewind this scenario a bit and tack early. If you tack before X has any thought of being on the layline (but when she is close enough to the layline that she might not want to do two more tacks), you greatly reduce the chance that she will tack on you. If that opportunity is lost, tack first if you are fairly close to the mark or if it's pretty windy (when being in bad air is not so slow). Wait for X to tack first when you are a long way from the mark or it's light air (and bad air is very slow).



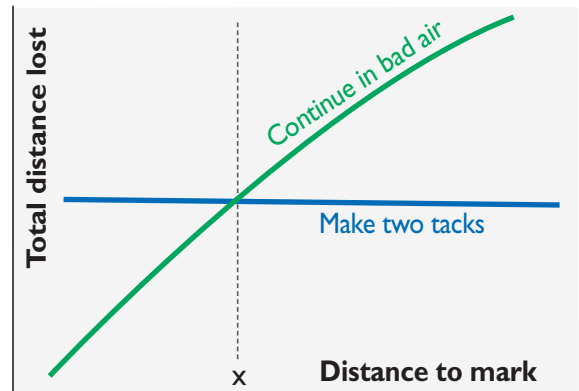


3. Make two tacks or continue in bad air?

OK, you got to the layline a little earlier than you wanted and now a boat ahead of you has just planted a tack directly to windward. You can still lay the mark on starboard tack, even in bad air, but would it be better to tack twice and clear your wind?

The best solution to this dilemma depends primarily on how far you are from the mark. If you are very close to the mark you won't lose as much by sailing in bad air as you would by tacking twice, so the choice is fairly easy. Likewise, if you are very far from the mark the distance you lose by tacking twice is probably small compared to what you'd lose by sitting in bad air all the way to the mark. Easy choice again.

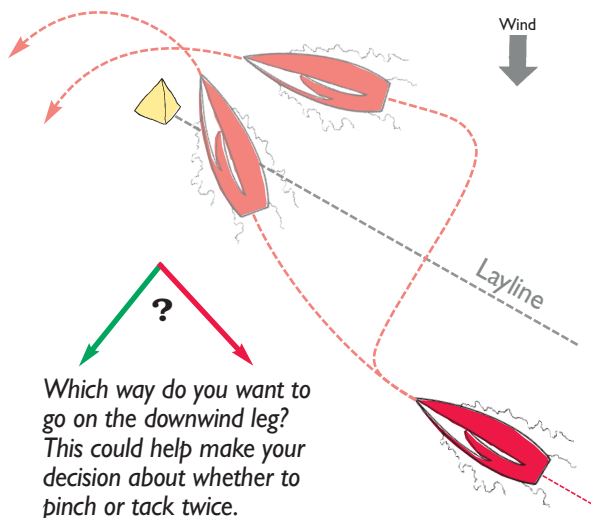
It's the middle distances where you face a tougher choice. See the chart at right for an interesting way to analyze this situation.



When you tack twice to clear your air, you will lose a certain distance to the rest of the fleet. For example, you might lose one length per tack for a total of two boatlengths. This distance lost will be the same no matter how far you are from the mark, so it is represented by a horizontal line above.

If you continue on the same tack you will also lose to the fleet, but the distance lost will vary by the amount of time you remain in bad air. For example, you might lose one length every 30 seconds. That is represented by the sloped green line above.

If you are X distance from the mark when the other boat tacks, the cost of two tacks will be roughly the same as staying in bad air. So if your distance from the mark is greater than X, do two tacks; if it's less than X, keep sailing in bad air. The trick is to figure out where X is for your boat in the existing conditions.



4. Pinch up to the mark or tack twice?

Here's another "Tack twice?" conundrum. Sometimes you approach the windward mark a little below the layline – you can still fetch the mark on starboard tack but you have to make a choice – either pinch up slowly around the mark, or do two quick tacks.

The best solution depends on several factors:

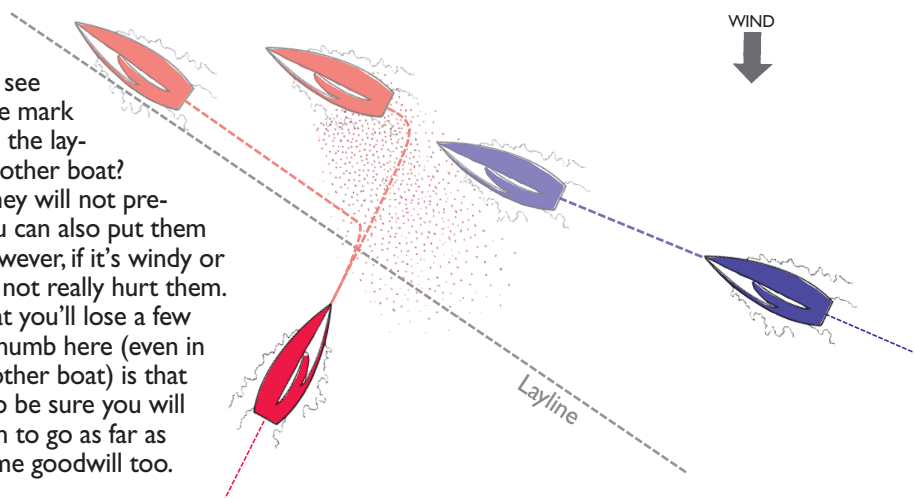
- How slow will you be if you pinch around the mark? If you can carry your momentum and coast around the mark, that's a lot better than if you have to slowly squeeze past it.
- What is the cost of two quick tacks in your boat in the existing conditions? If you're sailing a dinghy in moderate air and flat water, this option is a lot less painful than downspeed tacks in a keelboat in light air and chop.
- Where do you want to go on the next leg? If you are happy to stay high on starboard jibe on the run, it's not so bad to be slow at the mark. But if you want to do a jibe set or exit low on starboard jibe, you really need to round the mark with speed; in that case two tacks may be your better option.

5. Tack on the layline or on the overstanding boat?

Here's a tough one: As you approach the layline you see a boat that is slightly behind you and overstanding the mark by a couple or a few boatlengths. Should you tack on the layline or go a little farther and tack just in front of the other boat?

The benefit of tacking on the other boat is that they will not prevent you from tacking if you mis-judge the layline; you can also put them a little farther behind you at the windward mark. However, if it's windy or if they are overstood by very much, your bad air will not really hurt them.

The down-side of tacking on the other boat is that you'll lose a few lengths to every other boat in the fleet. The rule of thumb here (even in match racing when you are worried only about the other boat) is that it's best to tack on your layline. Go just far enough to be sure you will fetch the mark and then tack, avoiding the temptation to go as far as your competitor. This is fastest and may earn you some goodwill too.





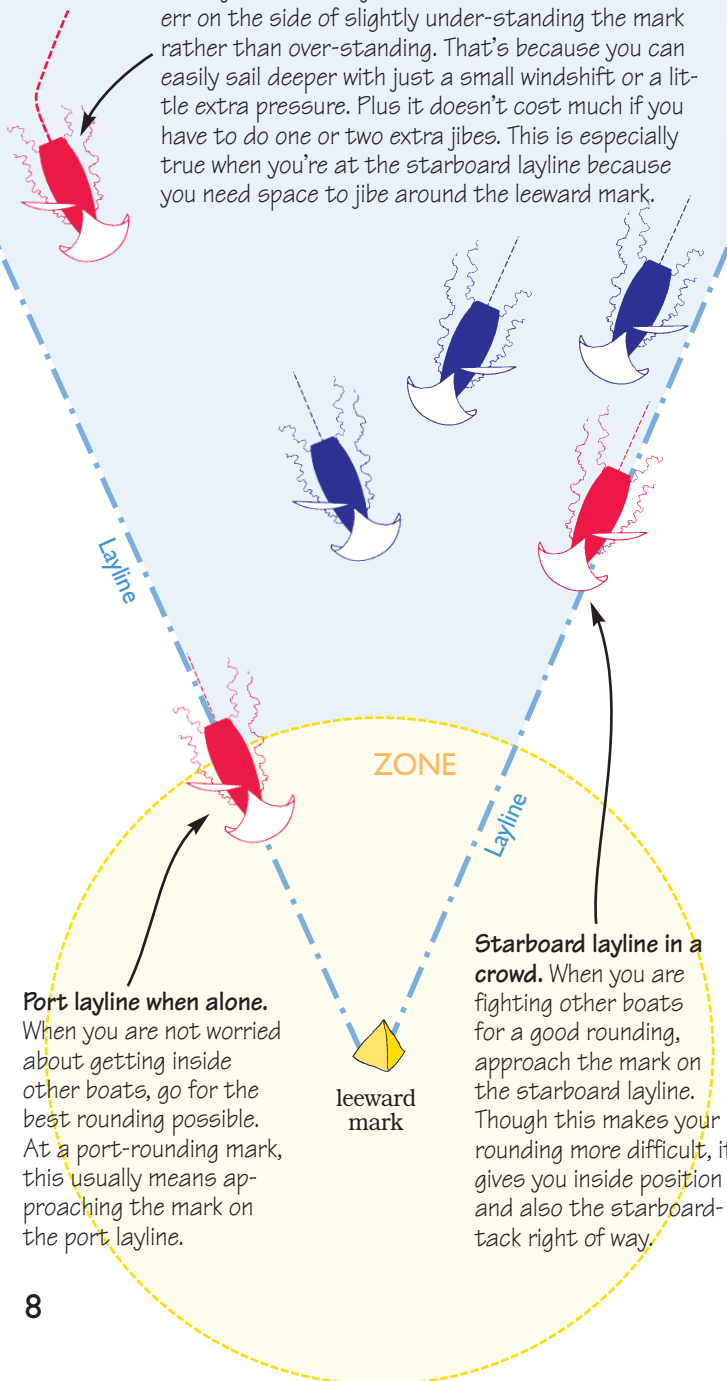
A few layline tricks and tips

The challenging thing about laylines is that they require a skillful blend of both strategy and tactics. It would be hard enough if sailors had to deal only with the strategic aspects of identifying laylines and getting their boat around each mark as quickly as possible. But laylines usually attract a crowd, and this means you also need premium boat-on-boat tactics (with good boathandling) to be successful.

Here are a bunch of ideas on how to execute an approach to laylines that will maximize your advantage and minimize interference from other boats.

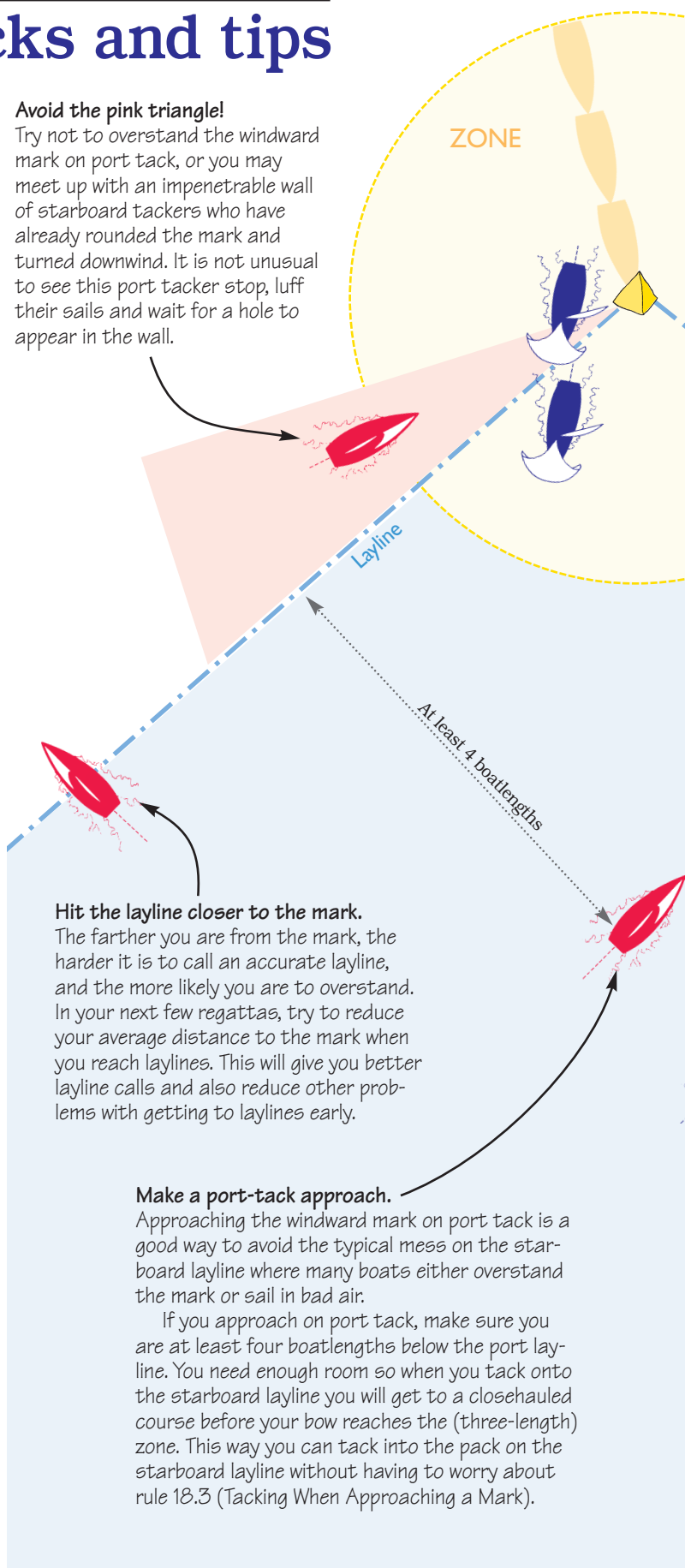
Err on the 'thin' side.

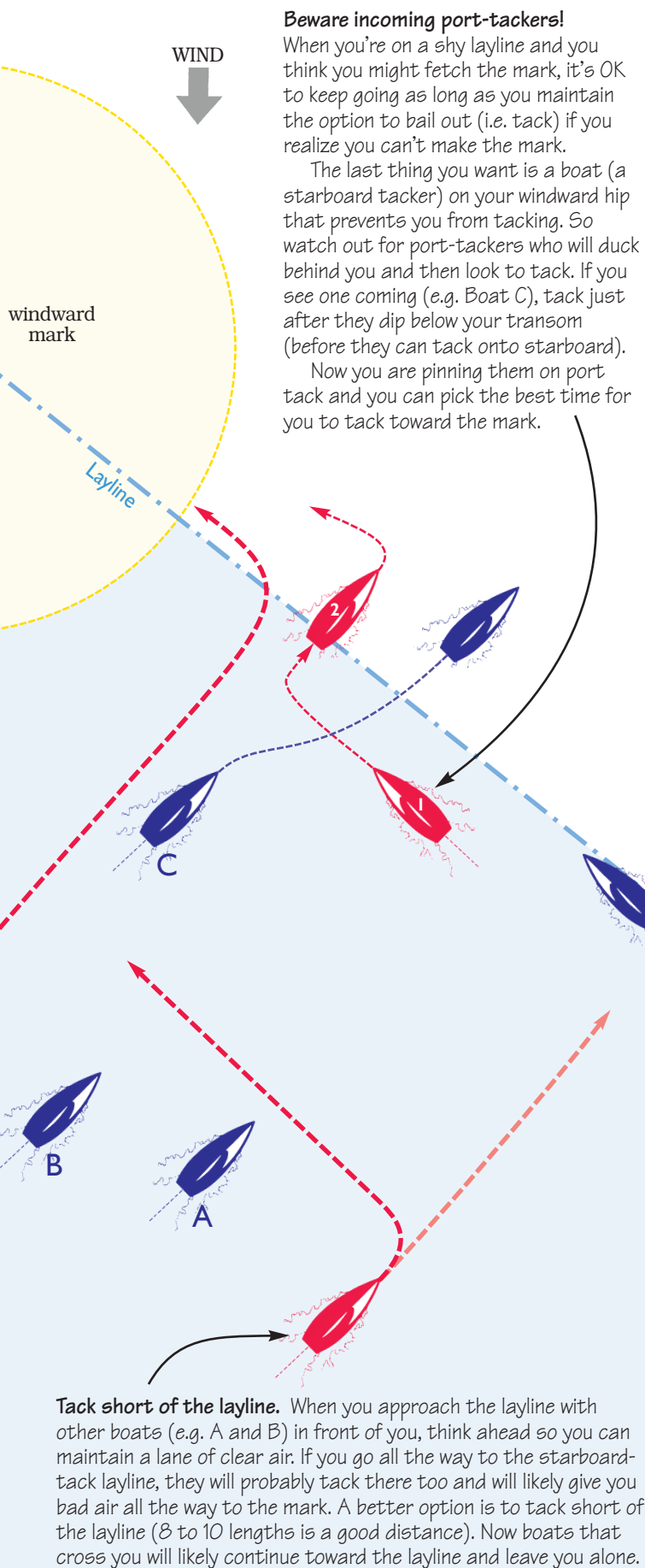
When you make a layline call on a run, it's better to err on the side of slightly under-standing the mark rather than over-standing. That's because you can easily sail deeper with just a small windshift or a little extra pressure. Plus it doesn't cost much if you have to do one or two extra jibes. This is especially true when you're at the starboard layline because you need space to jibe around the leeward mark.



Avoid the pink triangle!

Try not to overstand the windward mark on port tack, or you may meet up with an impenetrable wall of starboard tackers who have already rounded the mark and turned downwind. It is not unusual to see this port tacker stop, luff their sails and wait for a hole to appear in the wall.

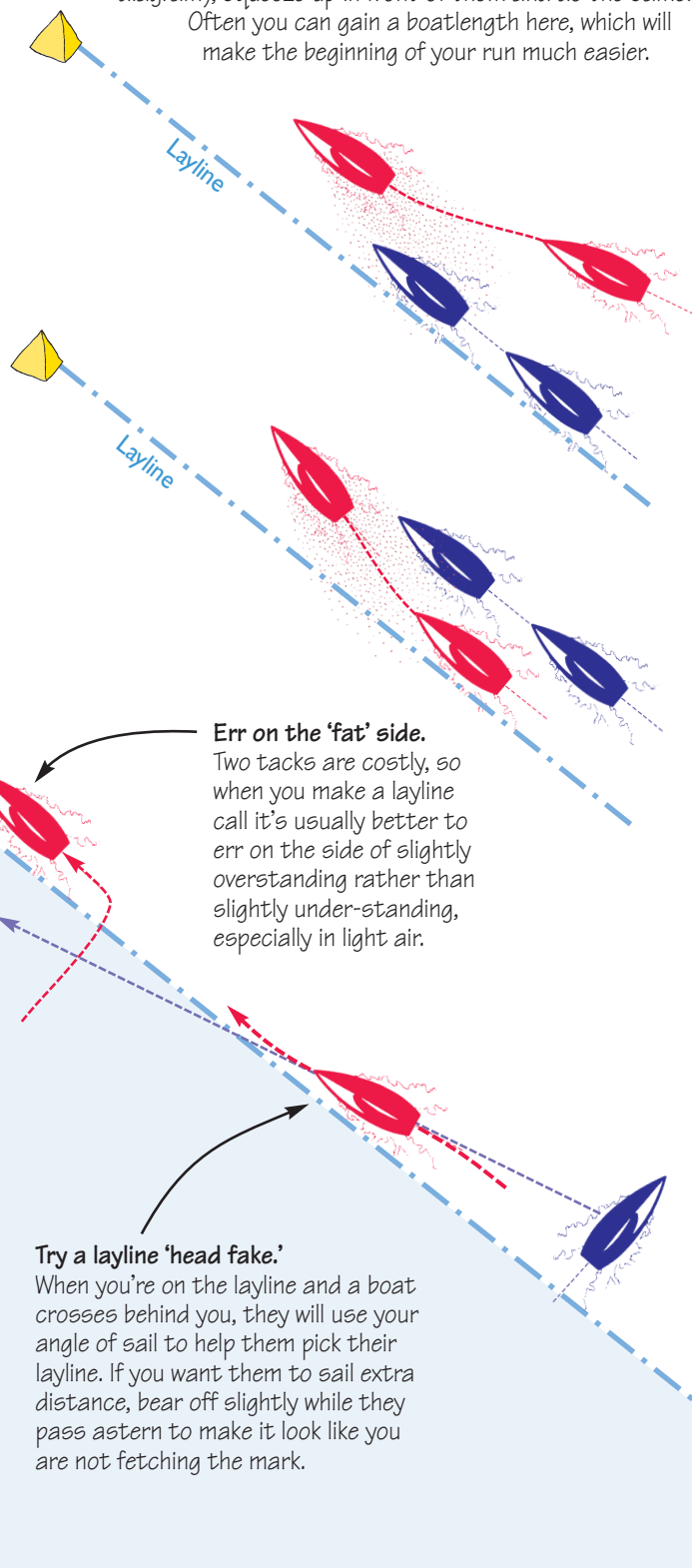




Squash the boat behind you!

If you can round the windward mark with a gap just behind, it will be easier to keep your air clear and sail whichever jibe you want. You can often create a bigger gap behind by 'squashing' the next boat as you approach the mark on the layline.

If you are to windward and slightly bow-ahead of another boat, bear off slightly (top diagram below) until you can slow them with your wind shadow. If you are in a safe leeward position (bottom diagram), squeeze up in front of them and do the same. Often you can gain a boatlength here, which will make the beginning of your run much easier.





Laylines to the leeward mark

Most of the comments in this issue about upwind laylines apply to runs as well. For example, your downwind laylines are also a function of wind direction, pressure, waves and current. And a compass or tacking lines can be very helpful for calling laylines to the leeward mark. But here are some unique things about laylines on runs.

• It's harder to see the leeward mark during runs because it always seems to be behind your spinnaker (especially those big asymmetricals). You can't call a layline if you can't see the mark, so move to a place on your boat where you will have direct visual contact with the mark.

• Your downwind sailing angles are much more sensitive to changes in wind velocity (see discussion

below), which means your laylines will change continuously. Factor this into your layline call by watching for puffs and lulls that will hit you on your way to the mark.

• When you're sailing upwind, layline calls are relatively easy because the layline is typically just forward of abeam. But there is no helpful guide like this downwind. On runs your opposite jibe could be anywhere from aft of abeam (in light air and chop) to right on your bow (in big breeze and waves).

• In most boats a jibe does not cost you quite (or nearly) as much as a tack. For example, in 10 knots of wind and smooth seas you might lose one boatlength in each tack but only half a length per jibe. Therefore, missing a layline downwind

(and doing two extra jibes) is not as terrible as missing a layline upwind (and doing two extra tacks).

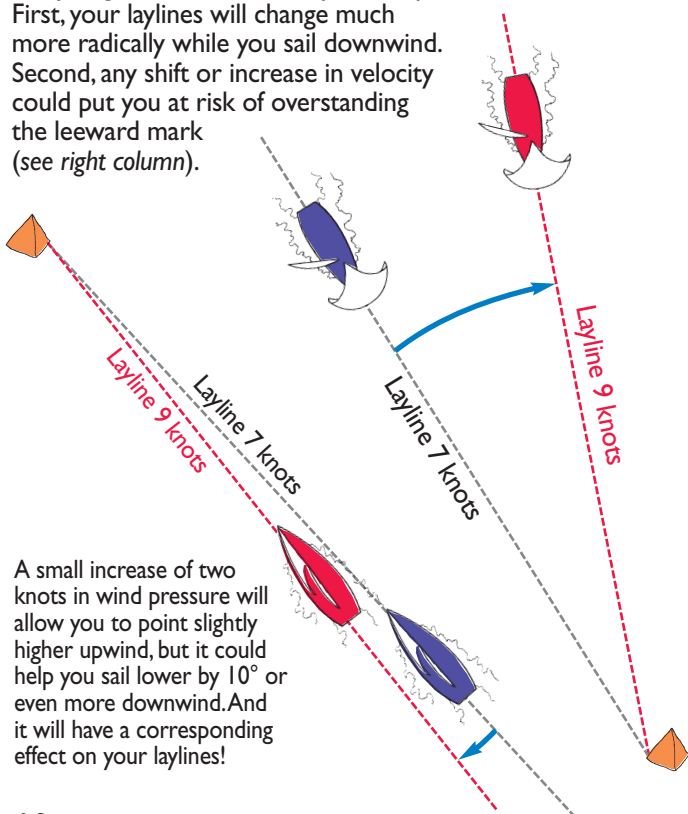
• One big problem with reaching the layline early is getting stuck in a place where you cannot escape the bad air of other boats that tack or jibe on your wind. On runs, obviously, you have to protect yourself from boats that are *behind* you, not ahead of you.

• At a leeward mark you often have to give room to boats on your inside or make a wide turn to do a good takedown. Be sure to include these maneuvers in your layline calls. On a windward leg it's usually fine to call a layline that aims right at the mark, but doing this at the leeward mark is probably not the fastest way to round it (see photo).

Small wind increases are more significant.

Downwind laylines can be tricky to find because they move around much more than upwind laylines. When you're sailing closehauled, changes in wind velocity affect the angle you can sail, but usually only by a few degrees. In contrast, the same velocity changes may affect your optimal downwind angle by many degrees. This has a couple of implications:

First, your laylines will change much more radically while you sail downwind. Second, any shift or increase in velocity could put you at risk of overstanding the leeward mark (see right column).

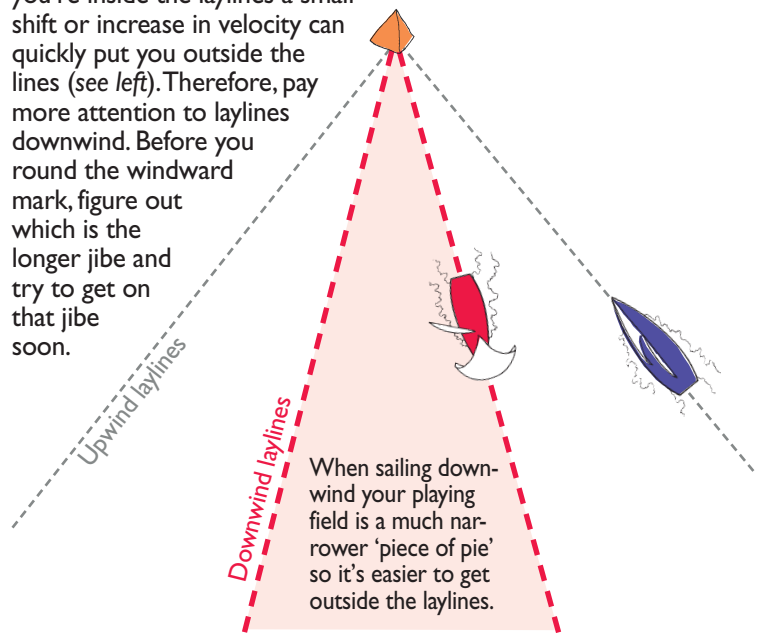


A small increase of two knots in wind pressure will allow you to point slightly higher upwind, but it could help you sail lower by 10° or even more downwind. And it will have a corresponding effect on your laylines!

It's easier to overstand the leeward mark.

On most boats and in most conditions, your jibing angle is at least a little (and often a lot) narrower than your tacking angle. Many boats, especially those with symmetrical chutes or no spinnakers at all, sail quite deep downwind, which means your sailing angle on port tack is relatively close to your angle on starboard tack. In fact, there are many times (in breeze and waves, for example) when boats sail almost exactly the same course downwind on both jibes!

This makes it harder to stay within the laylines to the leeward mark and not overstand. It also means that even when you're inside the laylines a small shift or increase in velocity can quickly put you outside the lines (see left). Therefore, pay more attention to laylines downwind. Before you round the windward mark, figure out which is the longer jibe and try to get on that jibe soon.



When sailing downwind your playing field is a much narrower 'piece of pie' so it's easier to get outside the laylines.



JH Peterson photo

When you are rounding the leeward mark to port and you approach it on starboard jibe, make your layline call so you end up at least one boatlength from the mark before you begin your turn. Every boat needs a minimum amount of distance to make a good jibe-rounding. If you choose a perfect layline right to the mark, you'll either have a bad, tight rounding or you will have to head up before the mark to get enough turning radius (which means you actually overstood the mark and will lose distance).

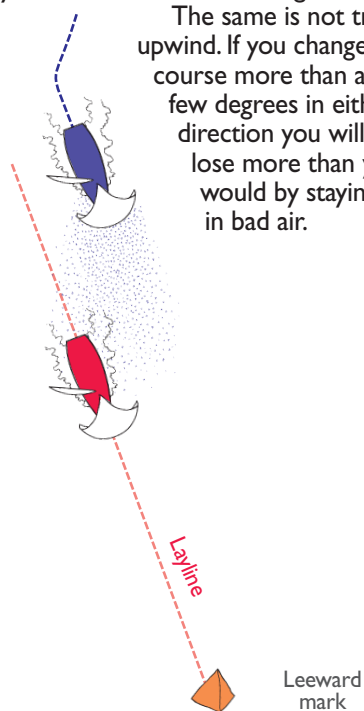
The bigger (or heavier) your boat and the more wind you have, the wider your layline call should take you from the mark. Of course, this assumes you have the rare luxury of making a perfect rounding. If you are fighting with other boats for clear air or room at the zone, you may have to call a less-than perfect layline to beat them to the mark.

Watch behind for bad air.

One of the problems with getting to an upwind layline too early is that it's hard to escape bad air from boats that tack on you. The same is true downwind, except you have to watch out for the wind shadows of boats behind you, of course.

One reason why this is not such a big worry near leeward marks is that you have a wider choice of steering angles downwind. If another boat jibes on your wind, you can usually head up 10° or bear off 10° to keep your air clear without losing much.

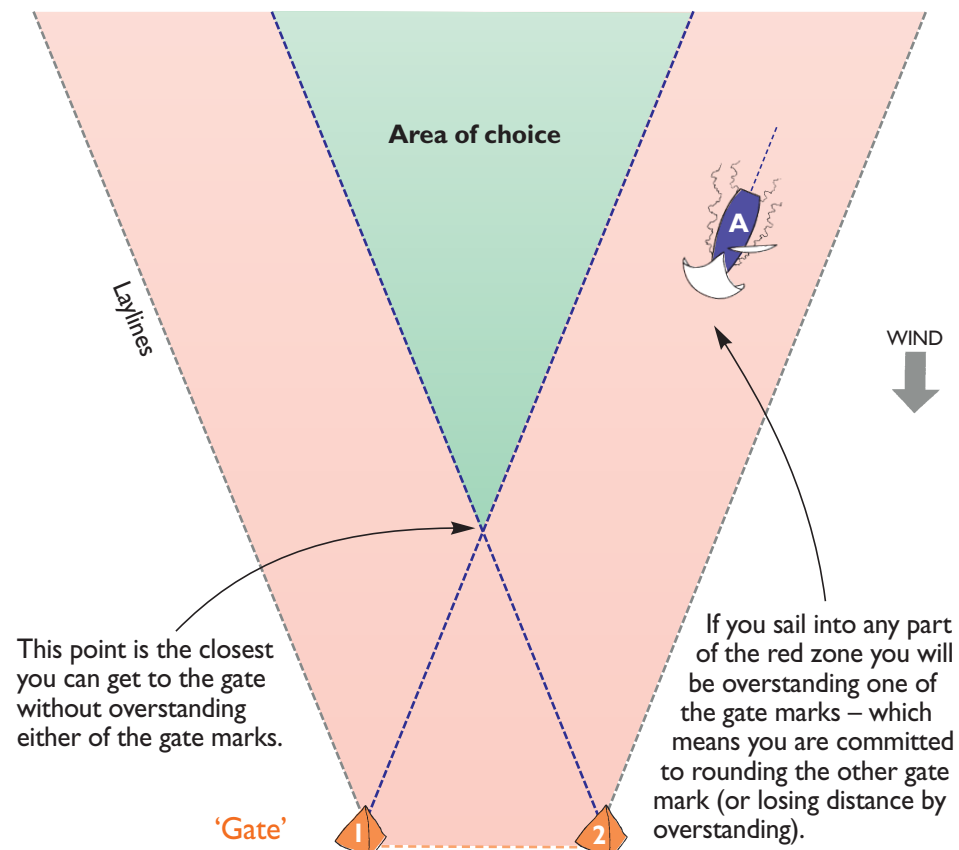
The same is not true upwind. If you change course more than a few degrees in either direction you will lose more than you would by staying in bad air.



Keep your options open when approaching a gate.

When your leeward mark is a gate, you have four laylines to worry about! The most important of these, at least initially, are the two inside laylines (shown in blue below). These are critical because if you sail outside either one (i.e. outside the green area) during any part of the run you will overstand one of the gate marks.

For example, Boat A in the diagram below has sailed into the red zone, and is now overstanding gate mark 1. A can go around gate mark 2, of course, but her tactical and strategic options have been cut in half. A's position would be much stronger if she was in the green triangle where she has the option to play shifts, maneuver against other boats and go to either gate mark (without overstanding and wasting distance).





Laylines and the rules

The word 'layline' never appears once in the rulebook. This idea of using an imaginary line to show where a boat would optimally sail when she approaches a windward or leeward mark is primarily a tactical and strategic tool.

However, the layline concept has been included in two different rules for quite a few years. Instead of using the term 'layline,' however, the rulebook uses 'fetching.' In fact, this is now such an important part of the right-of-way rules that a new definition of fetching was added in 2009 (see text below).

According to the rules, a boat is *fetching* a mark if she can: 1) pass to windward of it; 2) leave it on the required side; and 3) remain on the same tack. If a boat has to change tack to pass to windward of the mark or to leave the mark on the required side, she is not *fetching* it. Note the term *laying* usually has a meaning that is slightly different (see discussion below).

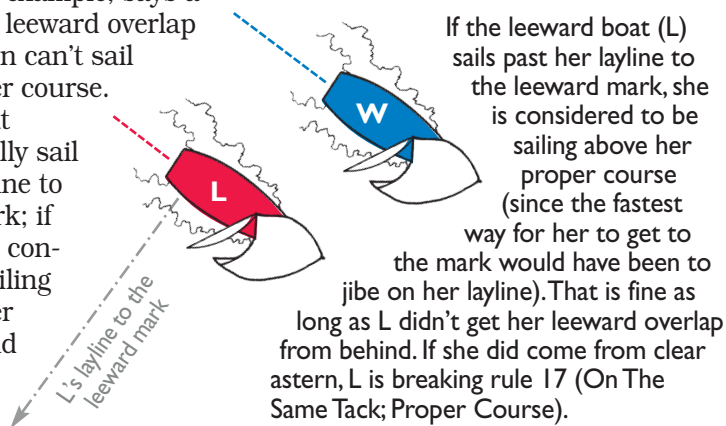
In the rulebook, the term *fetching* is mentioned in two key right-of-way rules: Rule 18.3 (*Tacking in the*

Zone) and rule 20.1(c) (*Hailing*). There is a closer look at each rule on the next page. In both instances, a key factor is whether or not one of the boats is *fetching* the mark. This requires a judgment call that is not always easy to make; if in doubt it's usually best to assume the other boat is *fetching* and act accordingly.

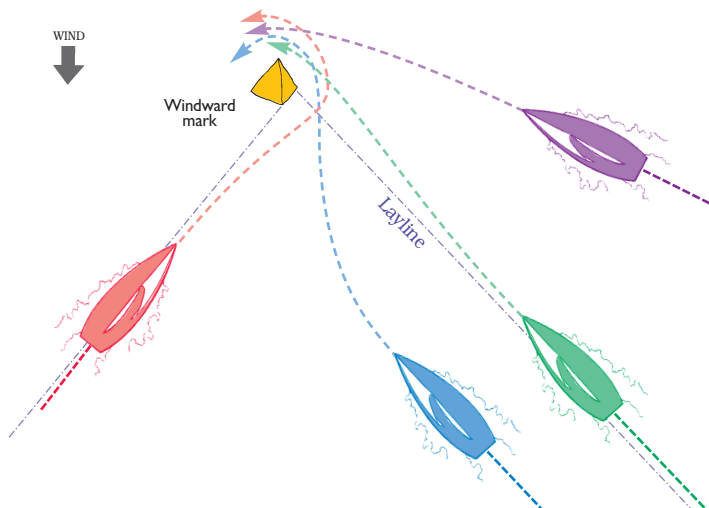
There is one other place where laylines get involved in the rules. Several rules include the term 'proper course.' From its definition, we know that a proper course is "A course a boat would sail to finish as soon as possible . . ."

Rule 17, for example, says a boat that gets a leeward overlap from clear astern can't sail above her proper course.

On a run, a boat wouldn't normally sail beyond her layline to the leeward mark; if she does, she is considered to be sailing above her proper course and could break rule 17 (see diagram).



'Fetching' versus 'Laying'



When sailors talk about approaching the windward mark, they often use the terms 'fetching' and 'laying' as if they mean the same thing. But when it comes to understanding the rules, it's important to distinguish between the two.

The word 'laying' refers to being on the layline, which is a path you sail at optimum VMG to get around the mark. 'Fetching,' on the other hand, refers to a boat that is able to get around the mark by doing anything (e.g. pinching or shooting into the wind) except passing head to wind. Consider the boats shown at left:

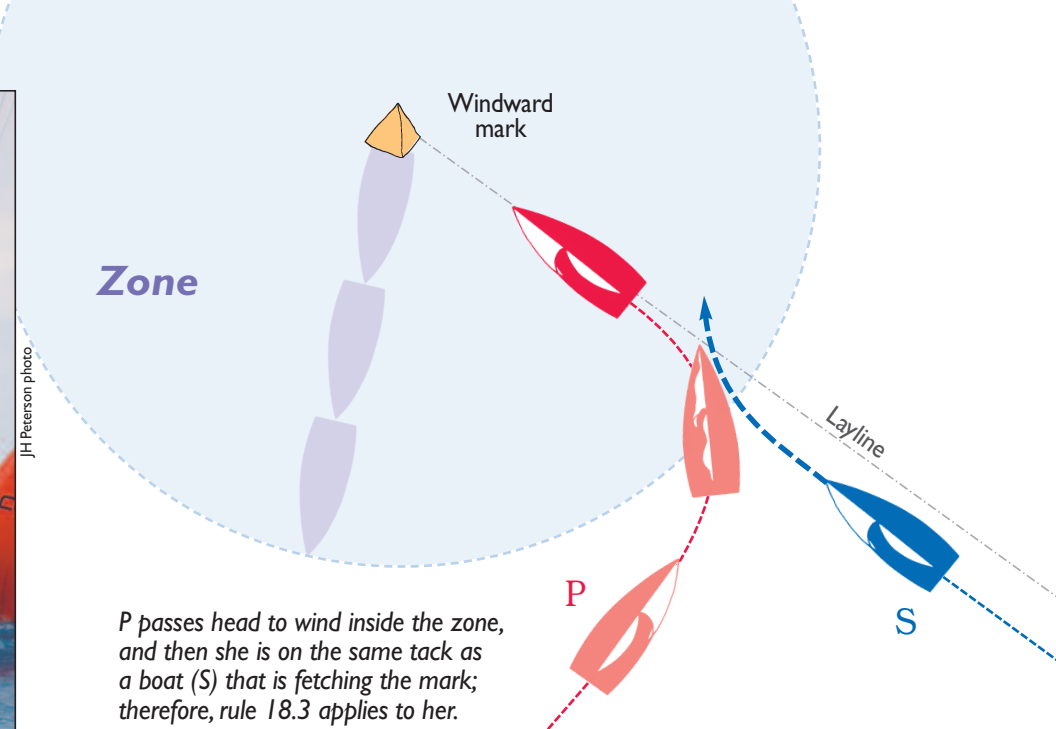
- The **Green** boat has called a perfect starboard-tack layline and is *fetching* the mark.
- The **Purple** boat is also *fetching* the mark even though she sailed way past the layline, overstood the mark and is now approaching the mark on a close reach.
- The **Blue** boat is approaching the mark below the starboard layline. She is not 'laying' the mark (at least not with normal upwind speed), but she is considered to be *fetching* it if she will be able to luff up and pass to windward of the mark without passing head to wind (i.e. changing tack).
- The **Red** boat is right on the port-tack layline to the mark, but she is not *fetching* the mark because she can't pass to windward of it without passing head to wind.

DEFINITION: *Fetching*

A boat is *fetching* a mark when she is in a position to pass to windward of it and leave it on the required side without changing tack.



JH Peterson photo



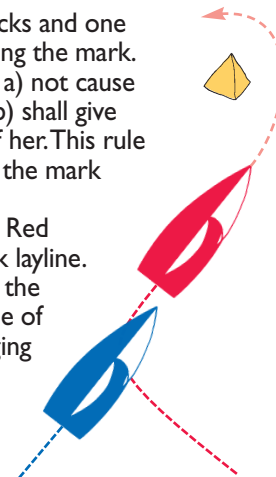
The option of approaching the windward mark on port tack is inviting because it often allows you to avoid the problems that come with a long approach on the starboard-tack layline – bad air and overstanding. However, the success of this tactic depends on finding a large enough hole in the line-up of starboard tackers that are fetching the mark.

In this photo, one boat is tacking from port to starboard quite close to the windward mark. This is OK as long as she does not a) cause any of the boats behind her to sail above closehauled or b) deny mark-room if any boat gets an inside overlap.

Tacking in the Zone (Rule 18.3)

Rule 18.3 applies when two boats converge on opposite tacks and one of them tacks inside the zone while the other boat is fetching the mark. When this happens, the rule says the boat that tacked shall a) not cause the other boat to sail above closehauled to avoid her; and b) shall give mark-room if the other boat becomes overlapped inside of her. This rule is a deterrent to boats that are thinking about approaching the mark close to the port layline.

Note that in the diagram above, rule 18.3 applies to the Red boat even though the Blue boat is below the starboard-tack layline. Although Blue missed the layline by a bit, she is still *fetching* the mark because she can luff up and pass on the windward side of the mark without crossing head to wind (i.e. without changing tack). Rule 18.3 would not apply to Red if the boats were approaching the mark on port tack (see *diagram at right*). That's because Blue is not fetching the mark (since she would have to *tack* to pass to windward of the mark).



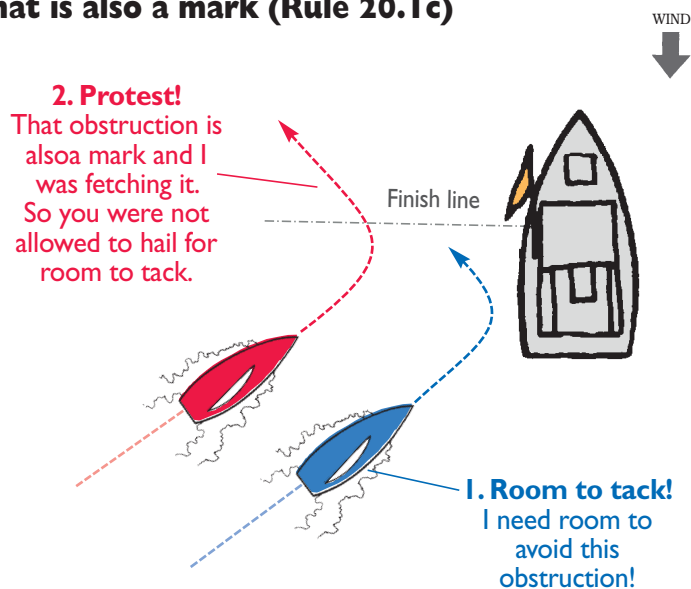
Hailing for room to tack at an obstruction that is also a mark (Rule 20.1c)

The definition of fetching comes into play when one boat hails for room to tack at an obstruction that is also a mark. By far the most common place where this happens on the race course is at a finish line when two closehauled boats approach a large committee boat that is both a finish mark and an obstruction.

In the situation shown here, the Blue boat is sailing closehauled toward the committee boat. Since Blue has to make a substantial course change to avoid the obstruction, she hails Red for room to tack. Red, however, is fetching the obstruction (i.e. she can luff up and pass to windward of the committee boat without changing tack), which means Blue cannot hail for room to tack here.

However, if Blue does make a hail, Red is required to respond by rule 20.2b, which she does by tacking as soon as possible. During this maneuver, Red hails 'Protest!'

Of course, Blue has the right of way so she could have luffed up to cross the line as long as she avoids hitting the RC boat and avoids passing head to wind and fouling Red.





EXCEPTIONS

When it pays to overstand the mark

It's not usually a good idea to overstand the windward or leeward marks. Whenever you sail past the layline you are simply giving away free boatlengths to every other boat in the fleet.

There are some times, however, when intentionally overstanding the mark can be a smart, or at least a smartly conservative, move. Here are a few examples:

Current flowing with wind –

One of the hardest times to call a good layline is when there's current, especially if that current is pushing you to leeward of the windward mark. When this happens, many boats make their layline call too early – the result is a big traffic jam at the mark with boats pinching, hitting the mark and generally losing places in the race.

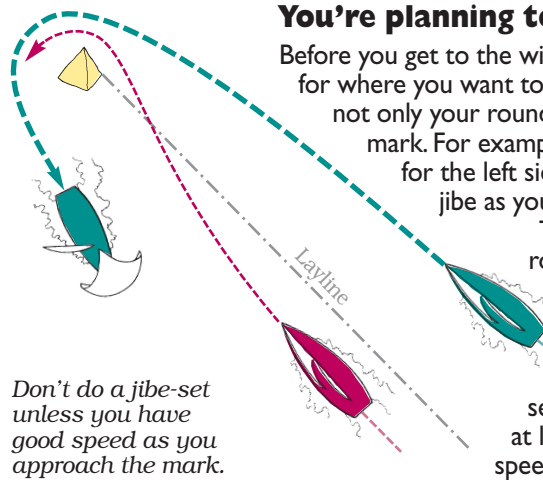
Whenever you have an adverse current, expect a mess at the mark and over-estimate how far you have to go to lay the mark. Especially in light air, you can gain a ton by overstanding so that you can eliminate pinching and avoid other boats that are struggling against the current. The last thing you want is to get pinned by a starboard tacker on your windward hip when you aren't comfortably making the mark.

If in doubt, go a little farther. You will lose some distance or boats if you go too far, but you'll protect yourself against really big losses.

More wind above the layline –

Once in a while, for some reason,

There are certain advantages in getting to the layline early. This gives you a chance to build speed for the rounding, reserves you a spot in the starboard-tack lineup and gives you time to set up for your spinnaker set. But there's a fine line between reaching the layline 'early enough' versus 'too early'. The more time you spend on your final approach, the bigger your risk of sailing extra distance or getting bad air. There are, of course, a few exceptions to this rule of thumb and those are described on this page.

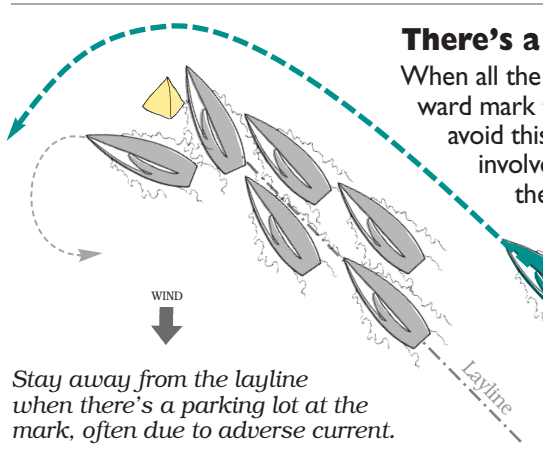


You're planning to do a jibe-set.

Before you get to the windward mark, formulate a strategy for where you want to go on the run. This plan will affect not only your rounding but your approach to the mark. For example, if you have a strong preference for the left side of the run (looking downwind), jibe as you round the mark.

The key to a successful jibe set is rounding the mark with speed. You'll have a very difficult rounding if you tack right at the mark or pinch up to get around it. So when you're planning a jibe set, it's good to overstand the mark at least slightly. This will give you extra speed and a much easier turn.

Don't do a jibe-set unless you have good speed as you approach the mark.



There's a crowd at the mark.

When all the boats seem to arrive at the windward mark together, that's a good time to avoid this area. Crowded mark roundings involve high risk and the chance (or even the likelihood) of big losses.

Instead of making the perfect layline call and sailing straight into trouble, go past the layline and overstand.

Though this may cost you some distance, sailing around the fleet is a good insurance policy.

Stay away from the layline when there's a parking lot at the mark, often due to adverse current.



JH Peterson photo

there is noticeably better pressure beyond the layline to the windward mark. When this happens, you generally have two choices: Tack on the layline and sail straight to the mark in less pressure, or overstand the mark and sail in more wind.

Which choice is better? That, of course, depends on the unique conditions which are present at the moment. If the pressure differential is great enough (i.e. there's a lot more wind beyond the layline), the speed benefit could easily outweigh the longer course you must sail to get to the extra breeze.

Better to over-stand than under-stand – As a rule of thumb, it's usually preferable to overstand the mark slightly than to under-stand it slightly. A perfect layline is best, but when you're not confident about layline location go far enough to be sure you make the mark.

This 'insurance' is a worthwhile investment when there's a chance that you will not make the mark (or you will make it, but slowly). If you think you might have to do two more tacks, sail into a header before the mark, or get tacked on by another boat, consider calling a "fat" layline.

It's a starboard rounding – Match racers (who round every mark to starboard) know that when they approach the windward mark on port tack (while the other boat is on starboard) they better overstand. The problem with making a perfect layline call is that if they need to duck the other boat, they won't be fetching the mark any more.

The same applies in a fleet race. Try not to approach the mark on port tack, but if you find yourself in that position, overstand enough so a) starboard tackers will likely tack inside you to round the mark; and b) if you have to duck one or more boats you will still make the mark.

Overstanding the mark (on purpose) does work sometimes, but it should be an occasional exception, not a general rule. Anyone in a sailboat can go past the layline and overstand; don't let this replace a thoughtful approach that gets you to the mark faster. •



Should you ever reach the layline far from the mark?

As a rule of thumb, no. It seldom pays to be on the layline when you can barely see the mark (or even when you're closer than that). But like all such rules, this one can be broken occasionally. Most sailors have at least one good story when they got to the layline very early and very far from the mark and made out like bandits. Here are some situations when this may work again in the future:

- One side of the course is very favored and you *have* to be there. Sometimes you are sure that one side of the course is a lot better. Maybe it has been paying off on every beat so far, and the farther you go to that side the better you will do. In this case, you can't worry about what will happen if you get to the layline too early – just head for that corner and do your best. Even if you overstand and sail in bad air all the way to the mark, you will still probably round ahead of boats that went the wrong way.
- You are in first place and covering most of the fleet toward the favored side. When you are leading the race, you don't have to worry about sailing in bad air on the layline. You just have to realize that once you get to the layline you won't be able to play the shifts any more. As long as you are confident that you are going the right way, and as long as most of the other boats are going there with (behind) you, it's usually OK to reach the layline early.
- You're near the back of the fleet and willing to take a large risk to catch up. Sometimes the only way to make a big enough gain is to get lots of leverage on the rest of the fleet, and this usually means getting to one of the laylines pretty early. Even if you get tacked on or this turns out to be the wrong side, you don't have much to lose.

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TEASER ANSWER (From page 1)

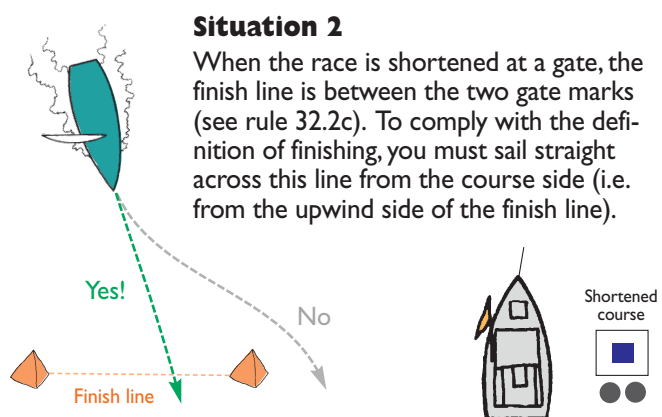
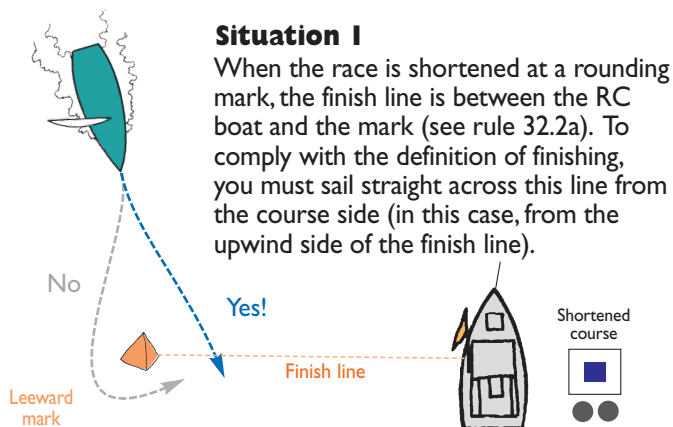
The answer in both situations is **B**.

Situation 1: When the RC shortens the course at a rounding mark, they can minimize confusion by positioning the committee boat on the side of the mark where boats were planning to round it. When they don't do this (as in the case shown here), you still have to finish by crossing the line from the 'course side' (which is to windward of the line in this case). This means you have to leave the mark to starboard even though, in the absence of a shortened course signal, you would leave it to port. A boat that rounds the mark to port and crosses the finish line going upwind does not comply with the definition Finish and therefore does not finish.

Situation 2: When the RC shortens the course at a gate, they can minimize confusion by positioning the committee boat right next to either gate mark so boats cannot fit between the RC boat and that mark. When they don't do this (as in the case shown here), you have to finish by crossing between the gate marks from the course side. A boat that sails between the RC boat and one of the marks does not comply with the definition of finishing (or rule 32) and does not finish the race.

DEFINITION: Finish

A boat is finishes when any part of her hull, or crew or equipment in normal position, crosses the finishing line from the course side ...



Rule 32 Shortening ... After The Start

32.2 If the race committee signals a shortened course (displays flag S with two sounds), the finishing line shall be,

- a) at a rounding mark, between the mark and a staff displaying flag S ...
- c) at a gate, between the gate marks.