



WORKBOOK 5: Downwind Strategy

Introduction

Sail smart downwind

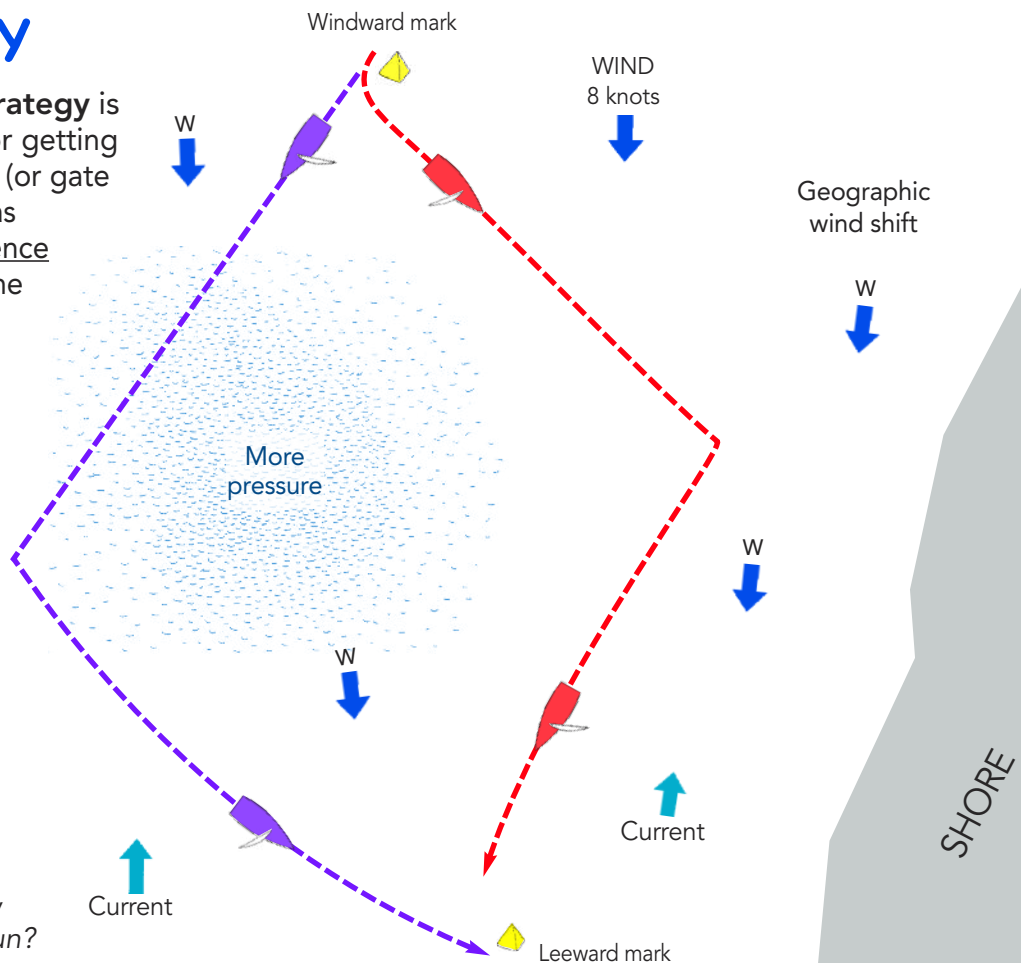
Sailing downwind is a critical part of almost every race these days. To be successful on leeward legs you need good boatspeed, solid boat-to-boat tactical moves and, perhaps most importantly, a smart strategic plan. You can be the fastest boat in the fleet with the best tactics, but those strengths won't help much if you miss a big windshift or an area of pressure and go the wrong way. That's why you need a strategic plan to help you take the fastest route down the run. This issue is all about that – how to put together and execute a downwind strategy.



STRATEGY

Your **downwind strategy** is a plan you make for getting to the leeward mark (or gate or finish) as quickly as possible, in the absence of other boats. It's the course you would choose if you were racing against the clock, taking into account factors like wind direction, wind speed, current and the location of the leeward mark.

If you were racing by yourself and you had to get from the windward mark to the leeward mark as fast as possible, how would you sail this run? That's your strategy.



SPEED & Smarts™

WORKBOOK

Downwind Strategy

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This issue is the fifth in a series of strategic and tactical workbooks. The next issue, a workbook on Downwind Tactics, will explain a bunch of tactical boat-on-boat moves for downwind legs.

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Why downwind legs are challenging

Some racing sailors think downwind legs are a good time to relax. Once they get around the windward mark they mentally shift into 'cruise mode,' relaxing and letting the wind push them toward the leeward mark.

If that technique worked for winning races in the past, it seldom does now. In many classes and wind conditions, sailors know that racing downwind can be even more challenging than racing upwind. It's harder to pick the favored side and keep the boat going fast, and often there are more chances to gain or lose on runs than on beats. Here are some reasons why it's especially important to maintain focus downwind:

- *It's harder to feel the wind.* Because you are sailing with the wind, you feel less apparent wind. This makes it tougher to find the downwind groove and sense changes in the wind.
- *It's harder to see puffs, lulls and shifts.* On a run, the helmsperson and most crewmembers are looking ahead (i.e. downwind, away from the wind direction). To see the wind that is coming they have to turn and look behind, which is not always easy to do. As a result, many boats race downwind for long periods of time with no one looking at the wind behind.
- *You don't get as many shifts and puffs.* When you're sailing with the wind (i.e. downwind) you don't sail through as many shifts and puffs as you do when sailing into the wind (i.e. upwind). This means you have fewer decisions to make, but each decision is that much more critical because you may get only a couple of shifts and/or puffs on each run.
- *Comfort level.* Most sailors are fairly comfortable with upwind strategy, but they are less familiar with how strategy works downwind. A complicating factor is that on runs sometimes you have to do the opposite of what you'd do on a beat. For example, on a beat you should sail toward the next wind shift, but on a run you should sail away from it.

All of this means you actually have to increase, rather than decrease, your focus after rounding the windward mark.



Photo by JH Peterson

Your apparent wind angle is key for downwind strategy and tactics.



Focus on strategy or tactics?

When racing downwind, is it more important to go the 'right way' (i.e. focus on strategy), or to make sure you are not being slowed or pushed around by other boats (focus on tactics). This depends on two main factors: 1) how far the boats will separate (laterally) on the run, and 2) how variable the wind conditions are. Let's take a closer look at each.

1. How far apart will the boats get during the run?

The more the fleet diverges laterally, the more they will be affected by changes in the wind and other strategic factors. That's because boats far apart are more likely to be sailing in different conditions, and they will also gain or lose more as the result of smaller changes in the wind.

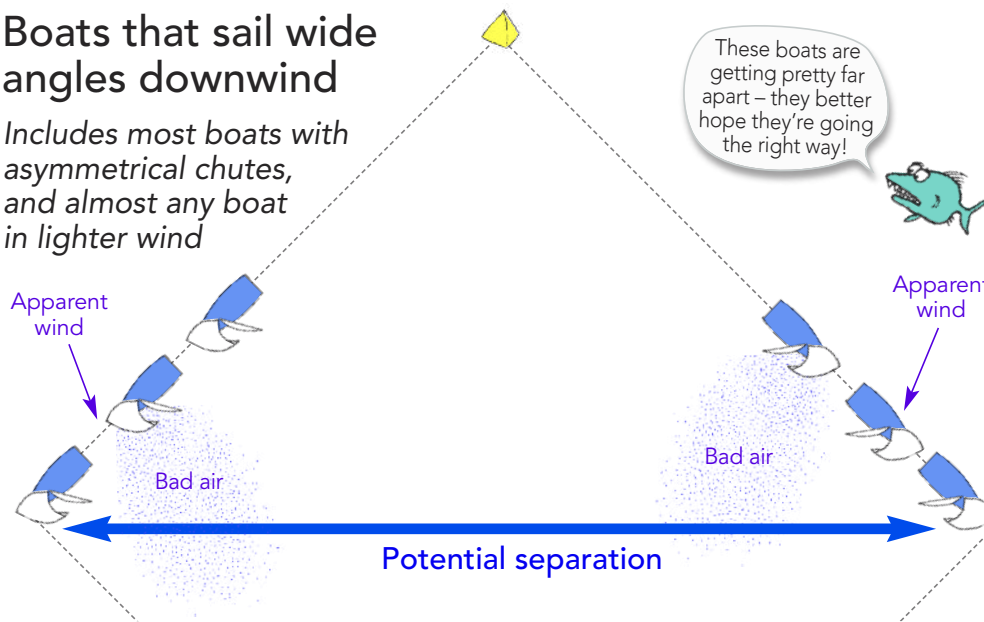
The amount of separation on a run is a function of several factors: a) the boats' downwind sailing angles; b) the length of the downwind leg (longer leg = more separation); and c) the wind speed (light air = more separation). As a general rule of thumb, the farther boats sail apart from each other, the more important it is to focus on strategy.

2. How variable are the strategic conditions (e.g. wind)?

Sometimes the wind speed and direction are very steady, and it doesn't matter much whether you go right or left. On runs like that, it's usually more important to focus on tactics (boat-on-boat moves) and keeping your wind clear of boats behind. But other days the wind is very puffy and shifty and there's a lot to gain (or lose) by playing the wind correctly. That's when you should focus almost entirely on strategy.

Boats that sail wide angles downwind

Includes most boats with asymmetrical chutes, and almost any boat in lighter wind



When boats sail **high** angles downwind, two things happen:

- 1) the angle of their apparent wind is pretty far forward. This means it is relatively easy for them to maintain clear air because their apparent wind is well in front of boats that round the mark behind them (see above); and
- 2) the boats can get pretty far apart on the run (as shown above). This means small changes in wind direction or pressure will often result in large gains and losses among the fleet.

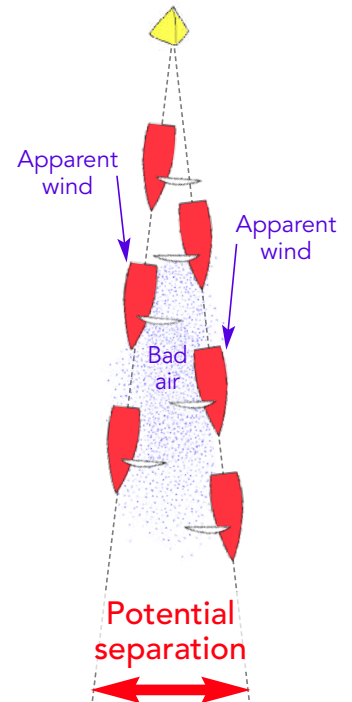
Because it's relatively easy to get clear air, and because they sail relatively far apart on runs, boats that sail high angles should generally:

Focus on strategy first, then tactics.

Workbook: Downwind Strategy

Boats that sail deep angles downwind

Including boats with symmetrical spinnakers or no spinnakers



When boats sail **deep** angles downwind, two things happen:

- 1) the angle of their apparent wind is well aft (almost dead astern). This means it's difficult to keep clear air because they are in the wind shadows of boats that round the mark behind them (above); and
- 2) the boats don't get very far apart on the run (as shown above). This means changes in the wind will not have such a big effect on the fleet.

Because it's hard to get clear air, and because they don't get too far apart on runs, boats that sail deeper angles should usually:

Focus on tactics first, then strategy.

Plan your downwind strategy

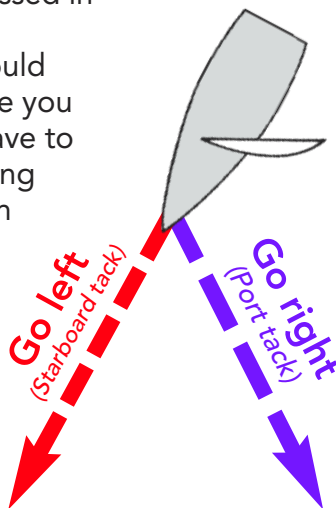
A strategic plan is a valuable road map to help you sail the next leeward leg as quickly as possible. It must consider every factor that could affect your performance, including wind direction, wind speed, current direction, current speed, the location of the leeward mark (or gate) and the presence of waves (see list at right). Your strategy does not consider onboard speed variables (e.g. tuning or sail trim) or the presence of other boats – these topics will be discussed in upcoming issues of *Speed & Smarts*.

Strategizing for a downwind leg should begin (and, ideally, be complete) before you start sailing that leg. This means you have to make your strategic plan before rounding the windward mark. Of course, this plan may or may not remain valid for the entire run. Strategic conditions are always changing, so you should continually re-evaluate your game plan as you sail down the run.

Choose left or right

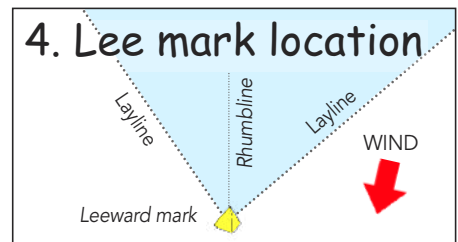
Developing a downwind strategy is not usually too difficult. That's because when you're racing downwind you have only two choices – you can either sail on port jibe, or you can sail on starboard jibe.

This means you must choose between two strategic options at any moment on a run: 1) keep sailing straight ahead, or 2) jibe and go the other way (on the other jibe). This is often a simple choice, but you have to keep making it dozens of times on every run. It's helpful to first develop a big-picture strategic plan for each downwind leg, and then make each of your 'starboard or port' choices within the framework of that plan.



Your downwind strategy should be in place when you round the windward mark, so start thinking and talking about it well before you get close to that mark. Make sure everyone on your team is aware of the strategic plan so they will know what maneuvers are needed as you go around the mark and continue down the run.

5 Strategic factors to consider when making a strategic plan for racing downwind (in rough order of priority for a typical run).



For each strategic variable above, two questions are critical to your downwind strategy:

- 1) Is this factor **variable** across the racing area? and
- 2) Will this factor **change** while you are on the run?

Should you play the side that was favored upwind?

In most races, boats sail upwind first and then downwind. So when it's time to plan your downwind strategy, you have probably just sailed most of an upwind leg. This means you've had some quality time to observe how the wind and current are affecting all the boats across the course area, and you've seen which side of the course paid off on the beat. This information may be very helpful for your downwind strategy, but first you must ask yourself two key questions:

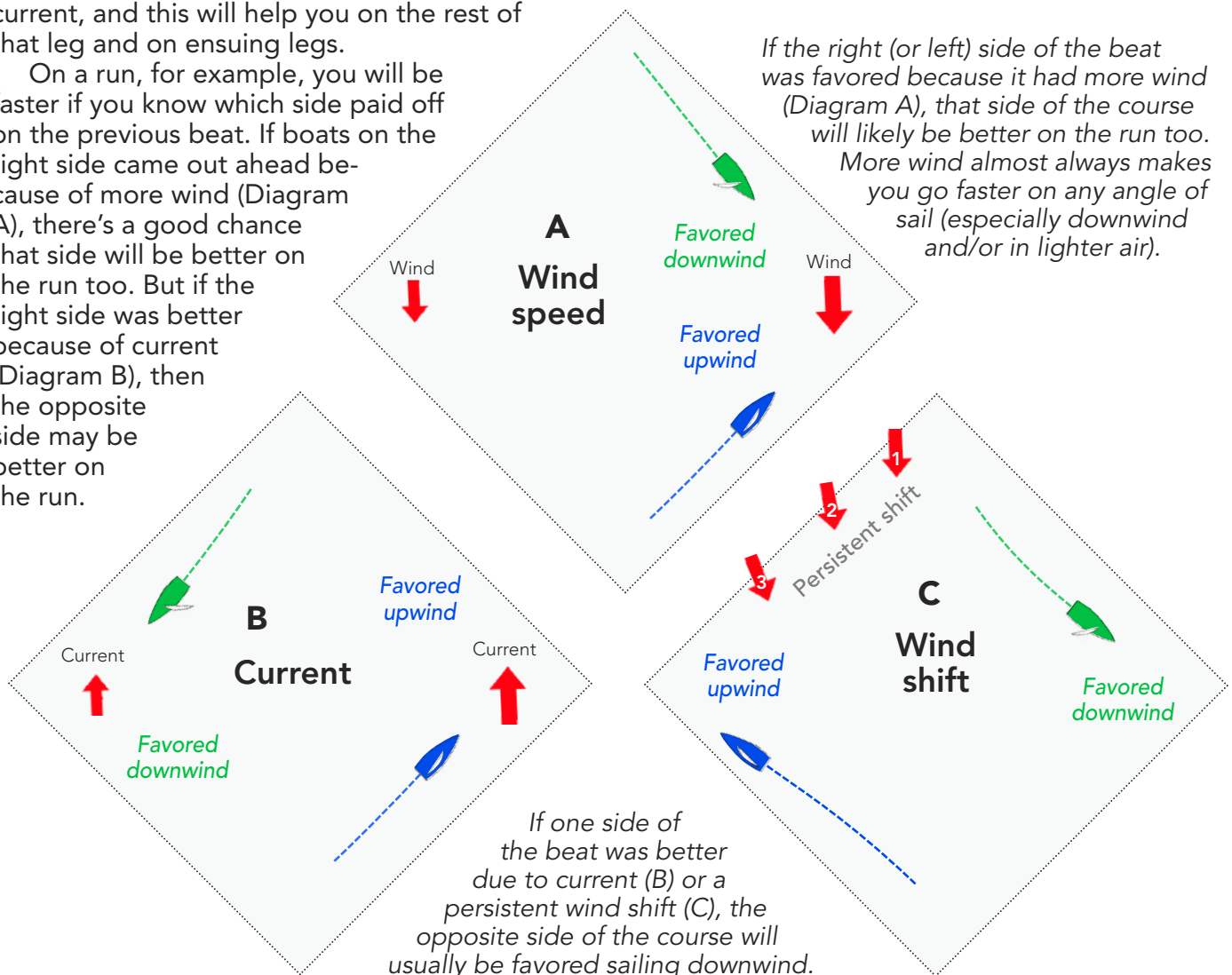
1. Have conditions changed from the beat to the run?

Sailboat racing is a challenge because conditions on the race course are always changing. The top sailors constantly watch for changes and modify their strategy (plus their tuning and trimming) as necessary. Because a run comes right after the preceding beat, conditions are often still very similar. In that case, everything you learned on the beat may be very helpful downwind (see Question 2). But it's also possible that the wind speed, wind direction and/or current have changed by the time you start the run, so it may be better to disregard most of what you learned upwind.

2. What was the reason why one side was favored on the beat?

Whether you are racing upwind or downwind, it is almost always helpful to know a) which side of the leg is paying off, and b) why that is happening. Make sure someone on your boat is watching the fleet on each side of the course. By seeing which boats are gaining and losing, you can understand a lot about strategic factors such as wind and current, and this will help you on the rest of that leg and on ensuing legs.

On a run, for example, you will be faster if you know which side paid off on the previous beat. If boats on the right side came out ahead because of more wind (Diagram A), there's a good chance that side will be better on the run too. But if the right side was better because of current (Diagram B), then the opposite side may be better on the run.



Why more wind pressure is so valuable on runs

Finding more wind should always be a key part of racing strategy, but it is especially important downwind for several reasons:

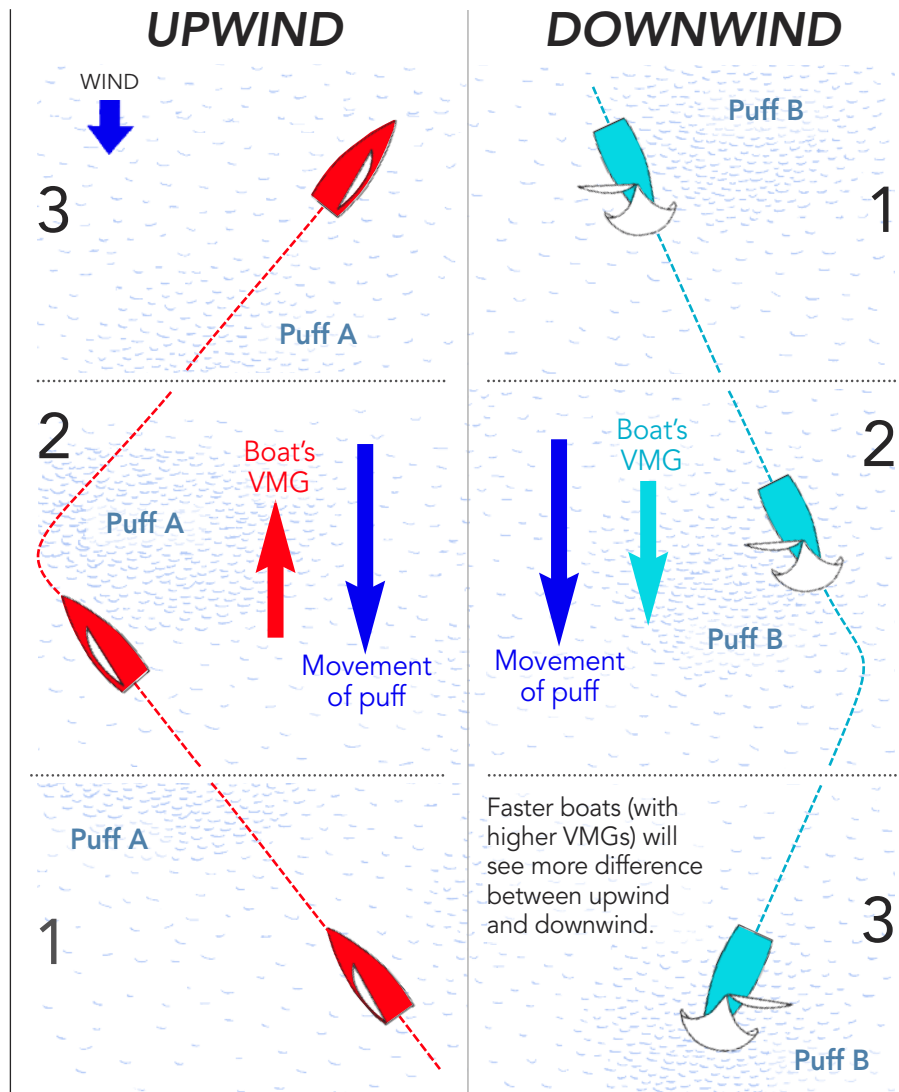
1. Puffs allow you to sail faster.

This is true no matter what angle of sail you're on, but the effect is more pronounced on runs, particularly for lighter boats that are on the verge of surfing or planing.

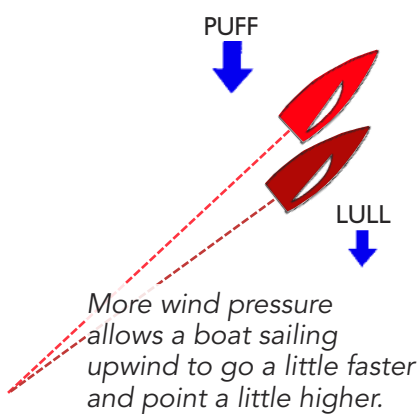
2. Puffs help you sail lower.

The goal downwind is to maximize velocity-made-good toward the leeward mark, and puffs are very helpful for this because they allow you to sail quite a bit lower (and therefore aim closer to the leeward mark). This is especially true when the wind speed is under 10 knots. A puff is usually more valuable than a header because in addition to sailing lower it makes you go faster.

3. You can stay in each puff longer when you're sailing downwind than upwind. When you are going downwind, you travel in the same direction as the puffs (see right), so you can benefit from the additional wind speed for a longer period of time. This may be the most valuable reason for finding more pressure on runs!

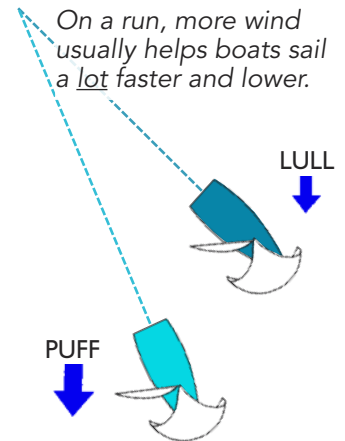


Imagine two boats sailing near each other in a race, one beating (left) and the other running (right). They each get a puff. The boat going upwind is moving in a direction opposite to the puff, so she sails through the puff relatively quickly. The boat going downwind is moving in the same direction as the puff, so she is able to stay with the puff a lot longer. The puff improves the performance of both boats, but this advantage lasts much longer for the boat that's going downwind.



◀ LEFT: When you're sailing upwind, any increase in wind pressure will improve your performance because more wind allows you to 1) sail a little faster through the water; and 2) point a little higher. These effects are very noticeable in light air when more pressure is especially valuable.

▶ RIGHT: When you're sailing downwind, an increase in wind pressure could be significantly more valuable (than getting a puff upwind). That's because in most cases more wind allows you to sail a lot faster and a lot lower, especially in light to medium air with lightweight boats that surf, plane and accelerate easily.



Stay in better pressure

Because sailing in even a little more wind is usually very fast on runs, you should do everything possible to 1) find areas of more wind pressure, and 2) stay in these puffs as long as possible.

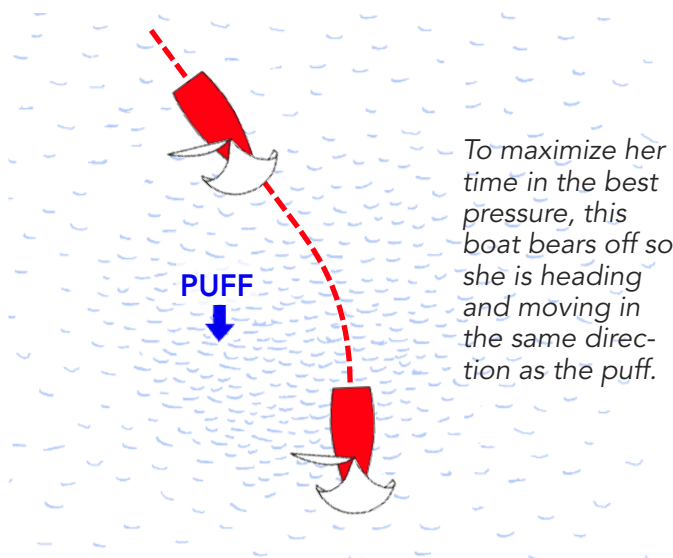
- Often the best strategy is steering a course that may not produce your best VMG in the short run. Sailing a little too high or too low, for example, could be very worthwhile if it gets you to a puff sooner or keeps you in a puff longer.

- Prioritize pressure over other strategic and tactical variables. For example, it's often better to be in a puff in bad air than a lull in clear air.

- Finding better pressure is especially critical in lighter air. If you are sailing in five knots of wind and you can find a puff of just one or two knots, your relative gains will be huge!

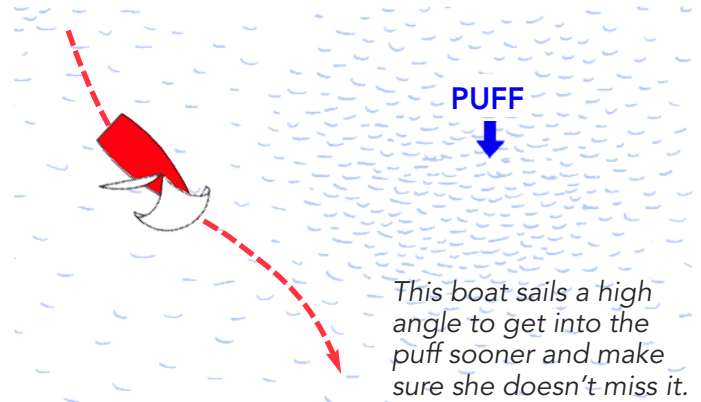
Bear off to stay in puffs longer

When you get into a puff, try to maximize your time in that increased pressure. A good way to do this is by sailing lower so you move in the same direction as the puff. The best angle is roughly straight downwind since this is generally the direction in which the puff is going. Even if dead downwind is lower than your optimal velocity-made-good (VMG) angle for that wind speed, it will be an overall gain if it keeps you in the puff longer (compared to a higher, faster angle that takes you out of the puff sooner). This technique is especially good for boats with symmetrical spinnakers (or no spinnakers) because they sail lower angles downwind and can often sail a little lower than normal without losing too much VMG.



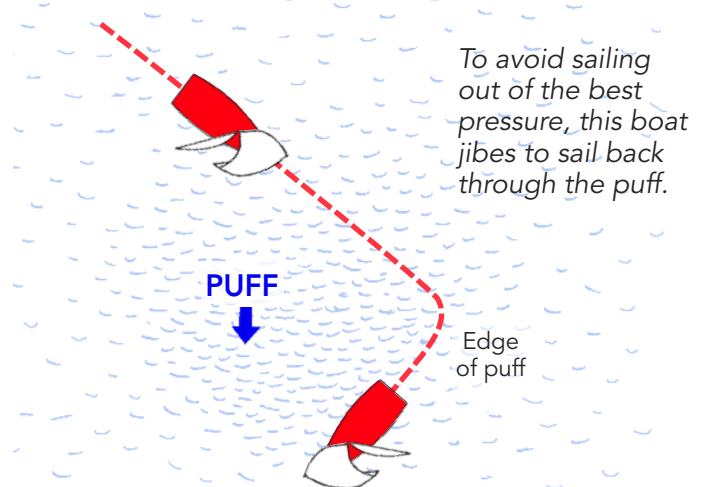
Head up to get into puffs sooner

One advantage most boats have downwind is a fairly wide 'groove' (compared to a narrow groove going upwind). This means they can sail high or low (for strategic or tactical reasons) without losing too much downwind VMG. For running (or reaching) on a puffy day, the basic rule of thumb is to sail high in lulls and low in puffs. When you don't have much wind, head up to build speed, get to the next puff sooner and minimize the time you spend in the lull. When you get more wind, bear off and go fast with the puff.



Jibe to sail back through puffs

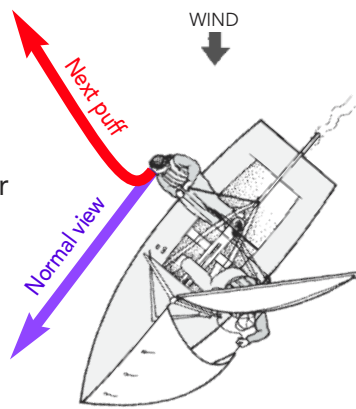
Bearing off with a puff is not always the best option. When the wind is light or you are in a boat that doesn't like to sail dead downwind, it's usually best to keep sailing higher angles. When you get to the edge of the puff (where you start to feel less pressure and you can see more wind astern than ahead), jibe so you sail back through the puff and benefit again from the extra wind speed. This works well for skiffs, cats, scows and boats with asymmetrical chutes because they normally sail higher angles that take them across the wind (instead of straight downwind), and they go very slowly if they sail too low.



Where to look for the next puff

When you're trying to figure out where your next puff will come from, it's important to know where to look. This is a key skill since finding more wind speed often gives you a huge advantage downwind.

Your next puffs (or lulls) usually come from the approximate direction of your apparent wind. These can be difficult to see because that is not where most crew are normally looking downwind.



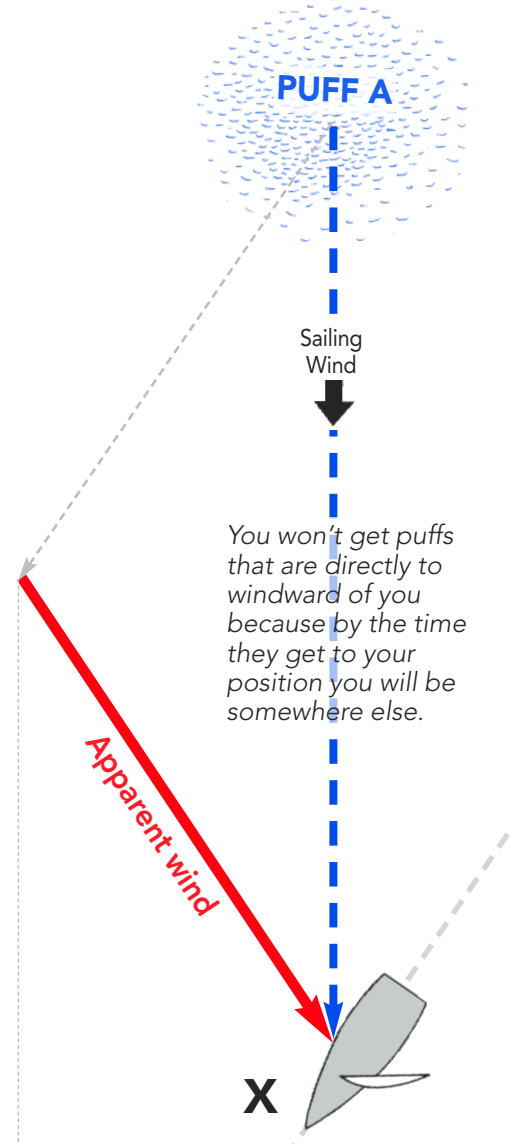
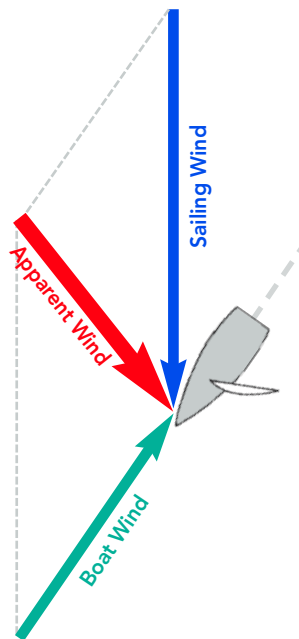
Know your vectors

Before we discuss more specifics about looking for puffs, let's define a few key wind-related variables:

Sailing wind – This is the wind in which the boats are sailing. It's a combination of 1) the true wind (felt by a person on land or on an anchored committee boat); and 2) the wind created by current.

Boat wind – This is the wind created by the movement of the boat through the water. Its strength and direction are opposite and equal to boatspeed (through the water).

Apparent wind – This is the vector sum of the sailing wind and the boat wind. It's the wind you feel on your face, shown by the windex at the top of your mast and the telltales on your shrouds.



Get a good view!

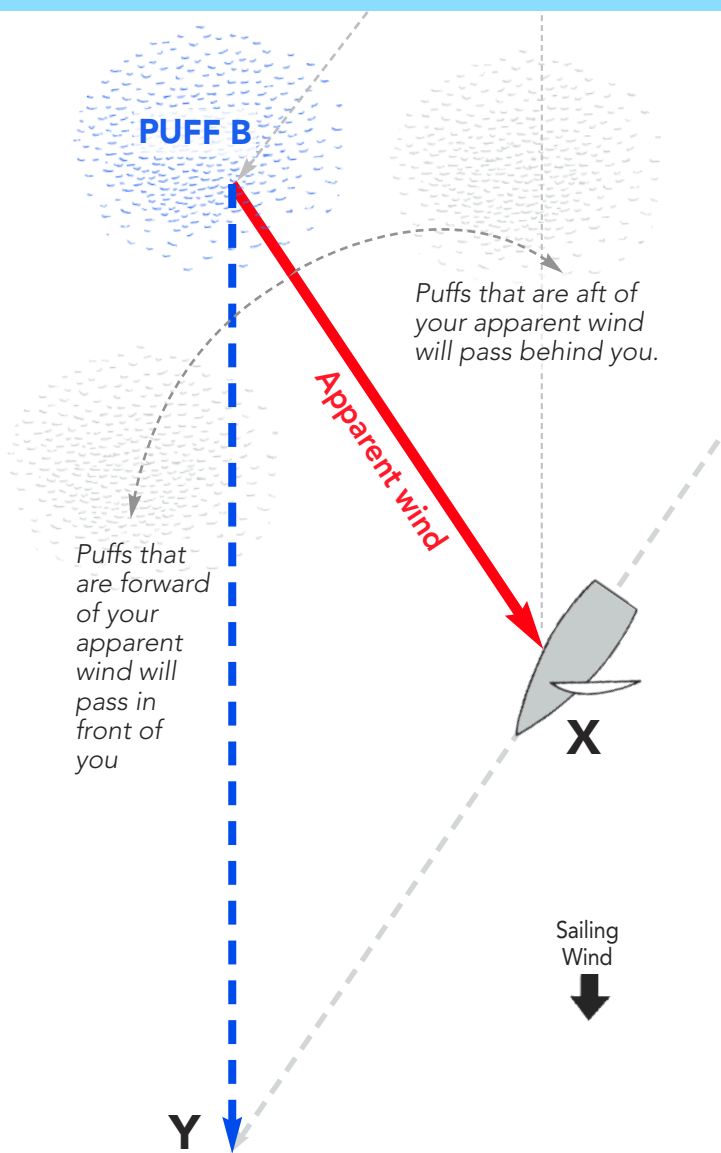
When you're trying to stay in the best pressure, you need a good view of the wind that's coming to you. This helps you be proactive about positioning yourself for upcoming puffs.

To see the wind, look aft in the direction of your apparent wind. It also helps to be as high as possible because the higher you are off the water surface the farther you can see to windward. On a run, you can often stand up on the deck to get a better view of the wind behind (because you don't mind the extra windage or having the weight off the rail).

When you're sailing downwind, where are your next puffs and lulls? Will you get a puff (A) that is directly upwind of you (at point X)?

The answer is almost always **no**. By the time puff A gets to point X, your boat will be somewhere else (e.g. point Y). The only times you might get puff A is if you; 1) stop and stay at point X; 2) sail dead downwind; or 3) sail a little and then jibe.

In almost all cases, if you look straight upwind (toward your 'sailing wind'), the puffs and lulls you see will pass behind you.

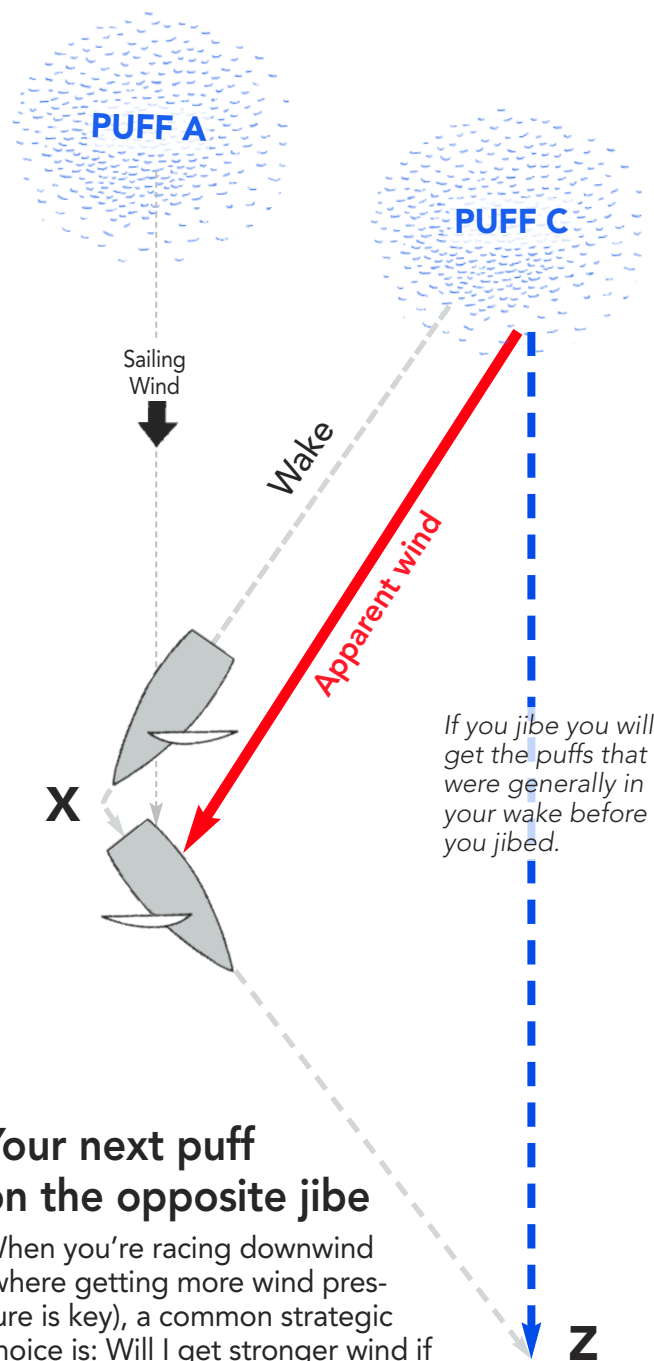


Use your apparent wind angle

To see which puffs and lulls you will get in the near future, look in the direction of your apparent wind. There are three easy ways to gauge this direction: 1) look at where your masthead windex is pointing; 2) look at the angle of the telltales on your shrouds; and 3) feel the direction of the wind on your face.

Your apparent wind direction and strength is a vector sum of the sailing wind speed and direction, plus your boat wind speed and heading. Because the apparent wind takes into account the relative movement of your boat and the wind, it points to the puffs and lulls you will meet on that jibe. In the example above, puff B will meet the boat at point Y.

Note two things: a) puffs on the forward (closer to your bow) side of your apparent wind will pass in front of you, and you won't be able to reach them; and b) puffs on the aft (closer to your stern) side of your apparent wind will pass astern (unless you jibe).



Your next puff on the opposite jibe

When you're racing downwind (where getting more wind pressure is key), a common strategic choice is: Will I get stronger wind if I keep going on this tack, or will the wind be better if I jibe?

It's easy to identify the puffs you will get if you stay on the same tack – just look in the direction of your apparent wind. But since you don't know the direction of your apparent wind on the new jibe until after you jibe, how can you predict what the wind will be like after jibing?

It turns out that your apparent wind angle after jibing will usually be very close to the direction of your wake before jibing. So when you're thinking about a jibe, look aft at your wake to see the puffs you'll get after a jibe. This makes it easy to compare wind pressure for both jibes at any point on a run.

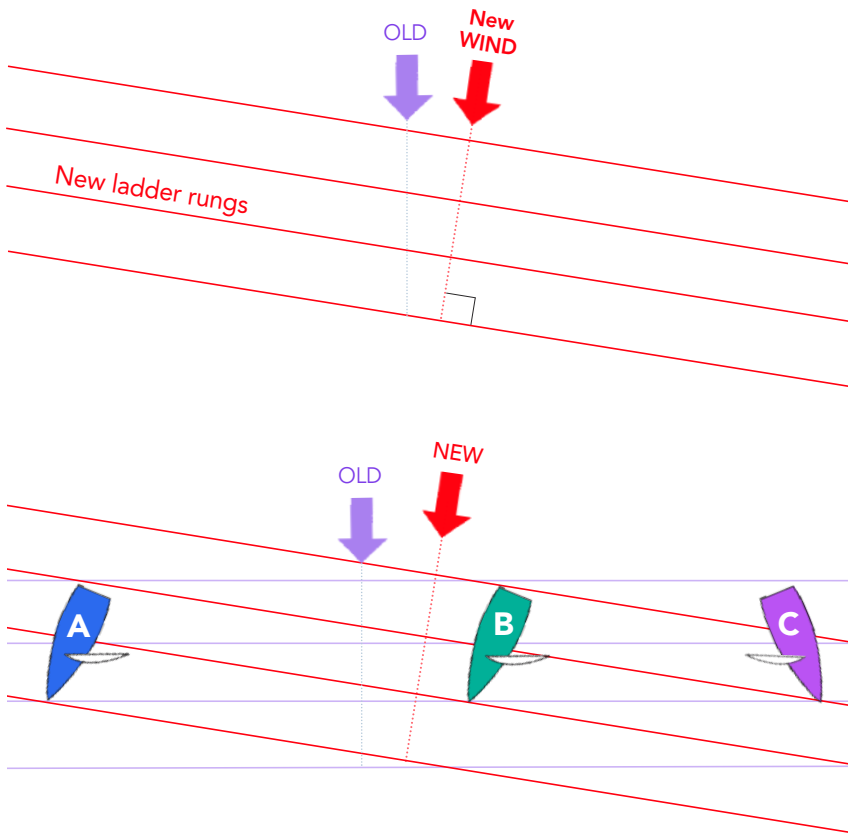
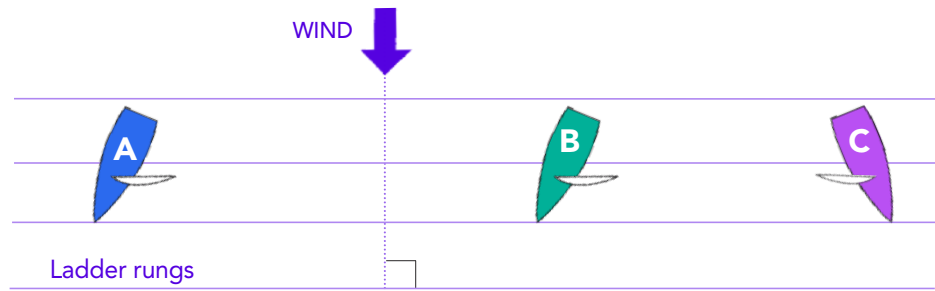
Use 'ladder rungs' to understand windshifts

When you're racing downwind, your goal is to make progress as fast as possible to leeward. In other words, you want to maximize your velocity-made-good in a direction away from the wind. This is always your goal because the farther you are to leeward, the sooner you will get to the leeward mark.

A good way to picture this idea is by using a conceptual tool called 'ladder rungs.' Imagine a giant ladder superimposed across the race course. The sides of the ladder are parallel to the wind direction and its rungs are perpendicular to the wind. Here are some ways this tool can help us while sailing down a run.

Ladder rungs

... are imaginary lines that help us understand how to play wind shifts when racing downwind.



▲ Each ladder rung represents a line of equal progress to leeward. As long as no one has overstood the leeward mark, all boats on the same ladder rung are even in the race because a) they have made the same progress downwind, and b) they must each still sail the same distance (i.e. the same number of ladder rungs) to get to the leeward mark.

◀ Ladder rungs are always drawn perpendicular to the wind. Therefore, whenever there is a shift in the wind direction the ladder rungs must also rotate accordingly.

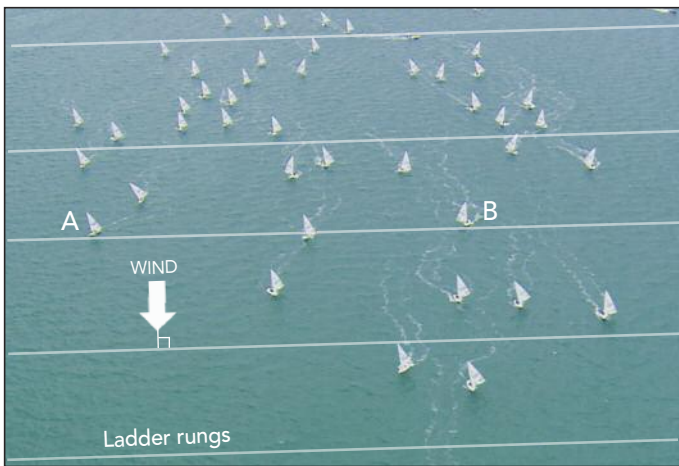
◀ Any time the wind changes direction some boats will gain and others will lose. In the original (old) wind direction (at left), Boats A, B and C were on the same ladder rung so they were even in the race.

When the wind shifts to the right ('new'), the ladder rungs rotate so they stay perpendicular to the wind. In this new breeze, Boat A is ahead because she is on a lower ladder rung. C is on a higher rung so she's behind.

Between any pair of boats, the boat that was farther from the new wind direction will gain, and the boat closer to the wind shift will lose.

Farther from wind shift = Lower ladder rung

When the wind shifts on a run, the boats that are farther from the new wind direction end up on lower ladder rungs, and therefore they make gains in the race. (See pages 12-13 for more on how to play shifts.)



▲ These Lasers are racing downwind to a leeward mark. Boats A and B are on the same ladder rung, so they are equally progressed to leeward and therefore they are even in the race right now.



▲ Now the wind shifts to the left and the ladder rungs adjust accordingly. Because Boat B is farther from the wind shift, she is now on a lower ladder rung than A, which means B is ahead of A.

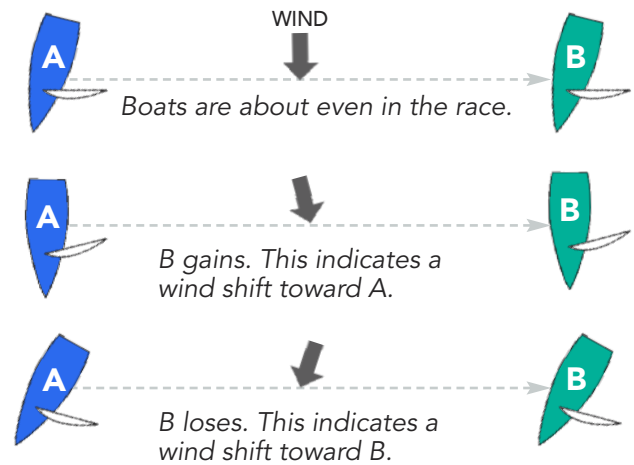


▲ Now the wind shifts to the right of its original direction. Because Boat A is farther from the wind shift, she is now on a lower ladder rung than B, which means A is ahead of B.

Watch other boats to play shifts

It's not always easy to see windshifts when you're racing downwind. One of the best ways is to track gains and losses relative to other boats in your fleet. Whenever you gain or lose, there are two possible reasons. It could be that one boat is simply going faster than the other. The faster boat may have more wind pressure, for example, or she may be doing a better job of trimming her sails.

The other likely explanation is that there was a windshift. Any time the wind changes direction, it favors the boat that is farther from the shift. So when a boat makes a gain on one side of you, it means the wind shifted toward you. If that boat loses to you, the wind shifted toward them.



Use these clues to find pressure

When it comes to finding more pressure on the race course, sailors have to think like detectives. What clues will help in the never-ending search for more wind? This is especially key on runs and in lighter air. Here are some telltale signs of more pressure:

- Color of the water – Darker water means more wind, but don't be fooled by changes in sky color.
- Texture of the water – Wind creates waves, so more waves usually mean more wind. Look for more water texture or denser wave areas.
- Other boats – Your fleet is a great resource for gauging wind strength, so watch other boats!
 - *Angle of heel* is usually proportional to wind.
 - *Hiking*: Body position is a function of pressure.
 - *Angle*: Sometimes boats point higher because they are lifted, but often it indicates more pressure.
 - *Bow wave*: More wind makes boats go faster, so look for the size of a boat's bow wave or stern wake.
- Flags – Look for wind indicators like flags (but not on moving boats). Note they don't include current.

Sail away from the next shift

We learned two important things from the ladder rung discussion on pages 10-11:

1. When you're racing downwind, your goal is to climb **down** the ladder; and
2. When the wind direction shifts, the boat that's farther from the new wind direction will end up on a lower ladder rung (and therefore ahead).

So if you want to get ahead in the race (by climbing faster down the ladder), here's a key rule of thumb: **Sail away from the direction where you expect the next wind shift.**

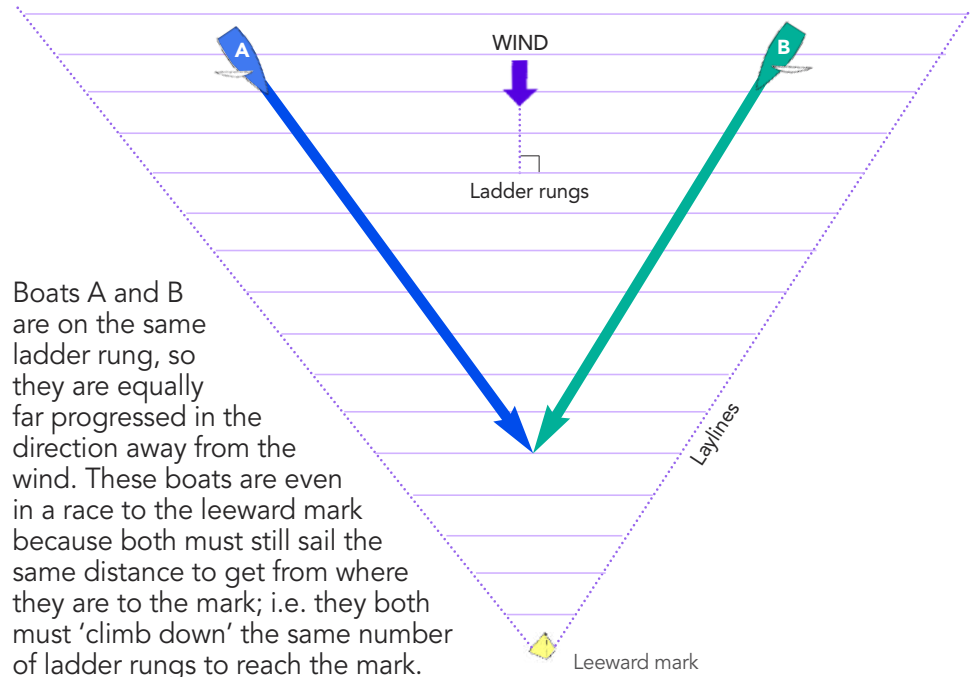
By getting farther away from the direction of the next shift you'll end up on a lower ladder rung when that shift comes, and this means you will be closer to the leeward mark (see right).

Of course, in order to do this you must have a pretty good idea about where the wind will shift next. This is not always easy, but if you work hard to understand the wind patterns you will likely be rewarded with nice gains.

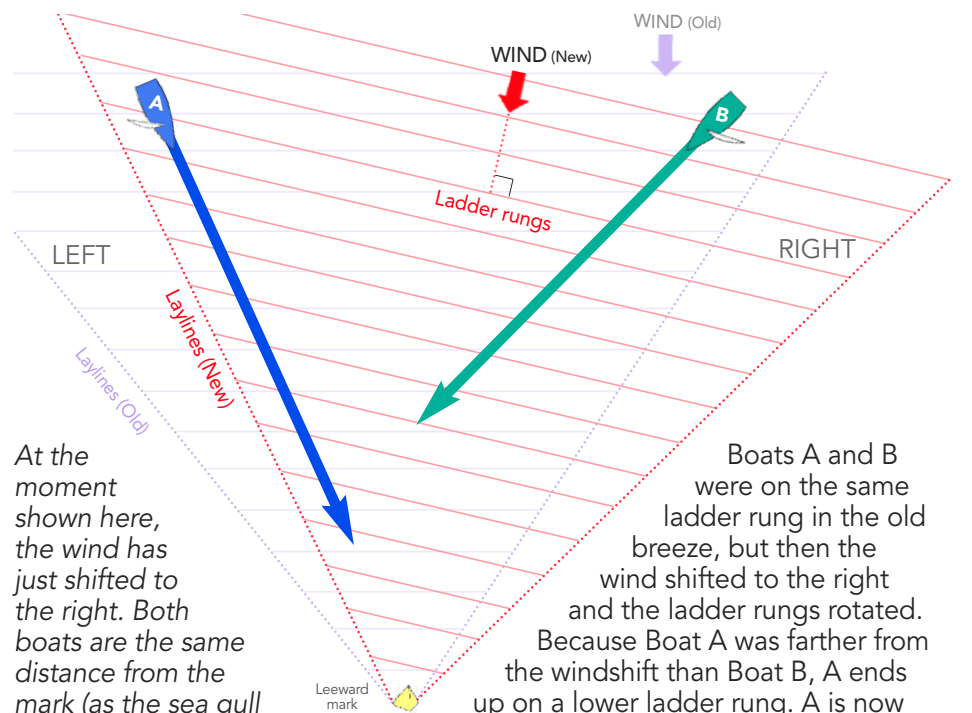
Of course, you won't always be able to figure out the wind-shift pattern. When you're not sure where the next shift will come from, it's difficult to sail away from it. In that case, here's a good rule of thumb to follow: **Sail the longer jibe first** (see pages 14-15).

By staying on the longer jibe (the one on which your bow is pointing closer to the leeward mark), you play the higher-percentage move while figuring out the next shift.

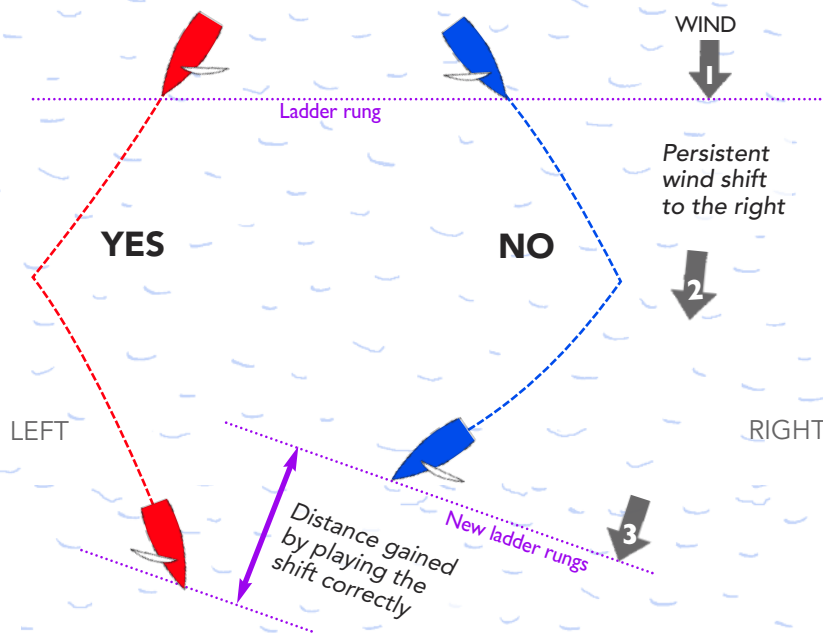
Why boats on the same ladder rung are even



When the wind direction shifts

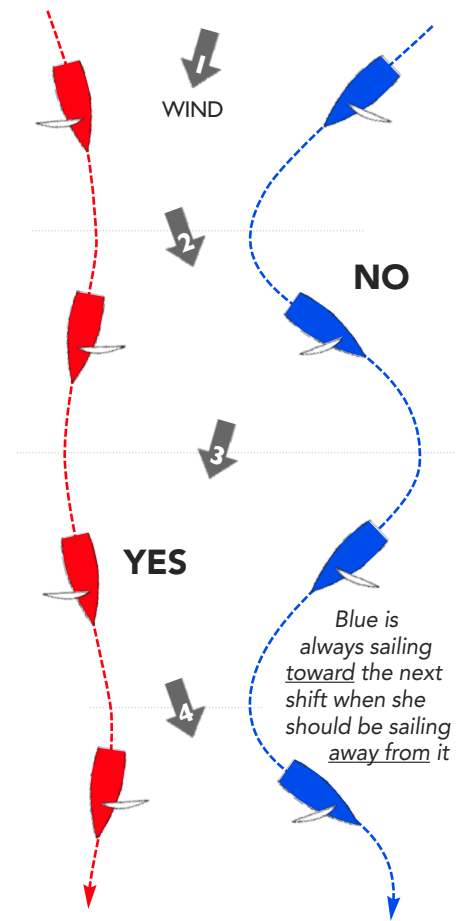


When you're trying to take advantage of wind-shifts downwind, the key is to position yourself away from the direction of the next shift before that shift occurs. In this case, the next shift was to the right so it was best to head toward the left.



Sail away from a persistent shift

When the wind shifts steadily in one direction over time, we call this a 'persistent' shift. In the scenario above, the wind direction keeps moving to the right, so we call it a persistent shift to the right. To take best advantage of this shift pattern on a run, you should begin the run by sailing away from the direction where the wind will shift. So if you expect the wind to shift to the right, you should initially head left. By positioning yourself farther from the wind shift, you will end up on a lower ladder rung and you'll gain on any boats that went right (because you are on a header sailing closer to the mark). Of course, in a persistent shift you must be careful not to go too far to a corner since you could easily overstand if the wind keeps shifting.

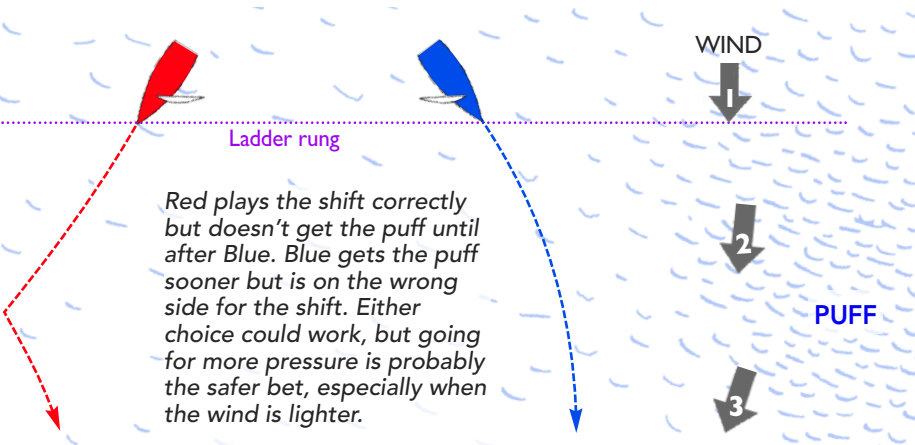


Play oscillating shifts

When you're racing upwind in an oscillating breeze, you tack on the headers to sail on the lifts. On runs, however, the best strategy for oscillating shifts is to jibe on the lifts so you are always sailing on a header. By staying on the headed jibe, you can sail lower and head closer to the leeward mark.

Jibing on lifts also works because it complies with the basic downwind strategy of sailing away from the next shift. If you are sailing on port tack and you get lifted, that means the wind has shifted left. The next shift will be coming from the right, so you should jibe and head left so you are on a lower ladder rung when the right shift comes.

Of course, you have to be careful about playing too many shifts when jibing is costly, such as in heavy air, light air or when your crew is new to spinnakers. As with any racing move, the benefit of each jibe has to outweigh its cost.



The danger of sailing away from the next shift

In theory, you should sail away from the next wind shift. But this doesn't always work in practice. The problem is that changes in wind direction are often accompanied by increases in wind speed. If you sail away from the shift, you may also be sailing away from the best pressure.

Since more wind speed is so valuable on a run, the gains from pressure often outweigh the advantages of playing the shifts correctly. This means the choice of which way to go is often challenging – it depends on how big the shift is and how much more wind is in the puff, among other things.

Sail the long jibe first!

The relationship between your location on the run, the position of the leeward mark and the wind direction is one of the most crucial strategic factors on any downwind leg. If you have to spend more time on one jibe than the other in order to get to the mark, this could have a big impact on your strategy, especially if you have to spend a lot more time on that jibe.

As a general rule of thumb, you should **sail the longer jibe first**. This is the jibe, starboard or port, on which:

- a) your bow is pointing closer to the leeward mark (or gate or downwind finish), and
- b) you will spend more time sailing during the rest of that downwind leg.

Note that the longer jibe can easily change while you are sailing on a run. If the wind shifts, for example, starboard jibe might suddenly become longer than port, or vice versa.

The main reason to sail the longer tack first is because sailing is a percentage game. By sailing in the direction that takes you closer to the leeward mark you usually improve your odds of getting there as fast as possible (*more on this in a minute*).

Sailing on the longer jibe is a good idea when:

- 1) **You have low confidence in predicting the next wind shift.** When you're not sure what the wind will do, sail toward the mark! Sailing the longer jibe gives you better odds of playing any wind shift that may come along.
- 2) **One tack is a lot longer than the other.** The greater the difference in length between port and starboard tacks, the greater the odds it will pay off to sail the longer tack first.
- 3) **You are far from the mark.** The closer you are to the mark, the less critical it is to sail the longer jibe because the odds of getting a windshift before the mark are smaller and the importance of other factors (e.g. tactics) becomes bigger.

One of the main reasons why it works to sail the longer jibe is because doing so keeps you away from the layline. Getting to a layline early is usually bad because you: 1) can no longer play shifts; 2) are likely to overstand the mark; 3) can get stuck in other boats' bad air; and 4) will have to make a sharper (i.e. tougher) mark rounding.

If in doubt, go long!

Whether you are racing upwind or downwind, sailing the longer tack or jibe first is a reliable rule of thumb. A 'rule of thumb' is a strategy that, over the course of many races, has proven successful a high percentage of the time. So unless you have a really good strategic or tactical reason to sail the shorter jibe first, figure out which jibe is longer and head that way.

Sailing the longer jibe is often a good way to get in synch with windshifts since the longer jibe is also typically the headed jibe (which you want to sail downwind).

Why sail the longer jibe?

When you're racing downwind you basically have two choices: sail the longer tack first or the shorter tack first. The problem with sailing the shorter tack is that you will soon end up at position B – on the layline with no ability to play windshifts. The longer jibe keeps you away from the layline and gives you more options.

The primary reason to sail the longer tack first is that being at position A is usually a lot stronger than being at position B. When you avoid the layline you typically have more options to play the wind.

When the longer jibe matters most

There are two situations when it's important to sail the longer tack as soon as possible:

1. The mark is far away

The farther you are from the mark, the more critical it is to get on the longer jibe. The last place you want to be is on the layline and far from the mark. Avoid this by sailing the longer jibe first.

As you get closer to the leeward mark, however, this becomes less important for a couple of reasons:

- a) The wind is less likely to shift in the time before you reach the mark. Therefore, it's not as critical to play the 'windshift odds' by sailing the longer tack, and it's OK to get to the layline closer to the mark; and
- b) Strategy becomes less important and you have to focus on other priorities, like tactics and boathandling, that will be necessary for a good mark rounding.

2. One jibe is a lot longer than the other

The longer one jibe is relative to the other, the more critical it is to get on the longer jibe. For example, if the leeward mark is 10 minutes away and you have to spend 9 minutes on starboard jibe, you better get on that jibe asap; otherwise you risk getting to the layline early and losing the option to play shifts.

But if one jibe is only a little longer than the other, it's not so urgent to get on the longer jibe. If you can sail the shorter jibe without reaching the layline, that's a viable option. Of course, the more you sail the shorter jibe, the more the odds will favor the other jibe.

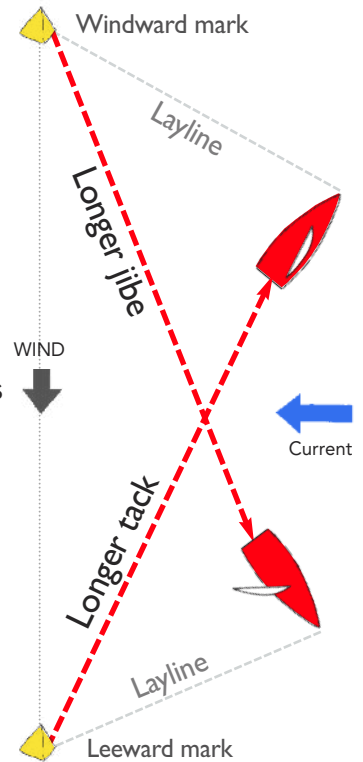
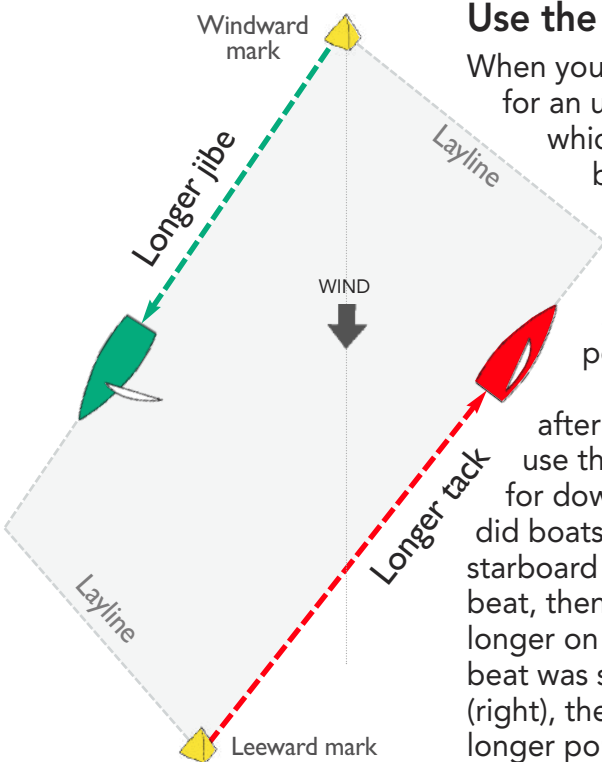


Sailing the longer jibe is not so urgent when you are relatively close to the mark (1) or when port and starboard jibes are not very different in length (2).

Use the beat to gauge the run

When you're trying to plan your strategy for an upcoming run, it's helpful to know which jibe will be longer (and roughly by how much) before you round the windward mark. If port tack is five times longer than starboard, for example, you will most likely do a jibe set so you can sail the longer port jibe first.

Fortunately, almost every run comes after a beat you just sailed, so you can use that windward leg to help you plan for downwind. For example, on the beat did boats spend more time on port tack or starboard tack? If port tack was longer on the beat, then starboard tack will probably be longer on the run (see left). However, if the beat was skewed because of a cross current (right), then a long port tack upwind means a longer port tack downwind as well.



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WORKBOOK: Downwind Strategy

Setting priorities

Plan and prioritize

Strategizing for a downwind leg is a bit like baking a cake – you have to know the ingredients and, just as importantly, how much of each ingredient to put in the mixing bowl. When you're trying to pick the favored side of a run, it's clear you should take into account wind shifts, wind pressure, current, waves and the location of the leeward mark. But how important is each of these variables?

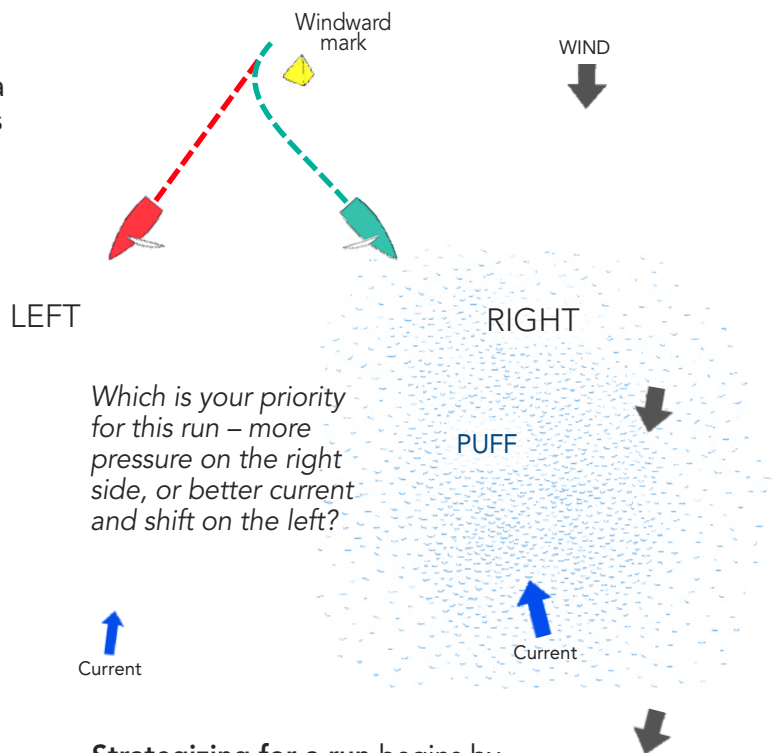
One thing that's obvious is these strategic ingredients are almost never exactly equal. They may all have some effect on your strategic plan, but usually there is one, or maybe two, factors that will make or break your success on the run. Your job is to figure out which one (or two).

Two things make this task (and sailboat racing in general) especially challenging:

1. Every race is unique, like a snowflake, with a never-before-seen combination of strategic factors. So you can't just pick a strategy that worked for a downwind leg in the past – you need a plan, and a set of priorities, that are based on the particular conditions you will face during this run.

2. Strategic variables are always changing. The wind direction and speed may appear to be steady all over the race course – but that's probably not the case, and even if it is, those things will soon change. So your plan, and the priorities you have chosen, must continually evolve during the leg and race.

Much of the material in this issue is also covered in the *Speed & Smarts* seminar on Downwind strategy and tactics. If you like this issue, you might be interested in attending (or hosting) one of our **seminars** that will be held between January and June 2020. You can find more info [here](#). Or send us an [email](#).



Strategizing for a run begins by asking a bunch of questions such as:

- Where is the most wind pressure?
- What is the shift pattern?
- Is there current across the race course?

The answers to these questions lead to a consideration of **priorities**:

Which strategic factor will be most critical?

Which factor(s) will not be so important?

- Wind pressure
- Wind shifts
- Current
- Waves
- Mark location

Then use all this information to figure out where you will go on the run.