

#100!
Special Anniversary Issue!

David Dellenbaugh's
SPEED & Smarts™



The newsletter of how-to tips for racing sailors

No. 100

Special Issue

Top 100 Tips!

Welcome to the 100th edition of *Speed & Smarts*! This centennial issue is the culmination of nearly 14 years of writing about how to sail fast and smart. The previous 99 issues, which contain nearly 1,500 pages, are filled with go-fast ideas covering almost every racing subject from start to finish.

This special 100th edition is no different. It contains 100 of the most useful race-winning tips ever collected into one publication. Many of these are 'all-star' tips chosen from the first 99 issues; others are new. They cover a wide range of racing subjects (see below) and offer a huge amount of 'food for thought.'

Fourteen years ago it was hard to imagine that we would ever produce 100 issues. Now it seems there is a good chance we could get to 200!

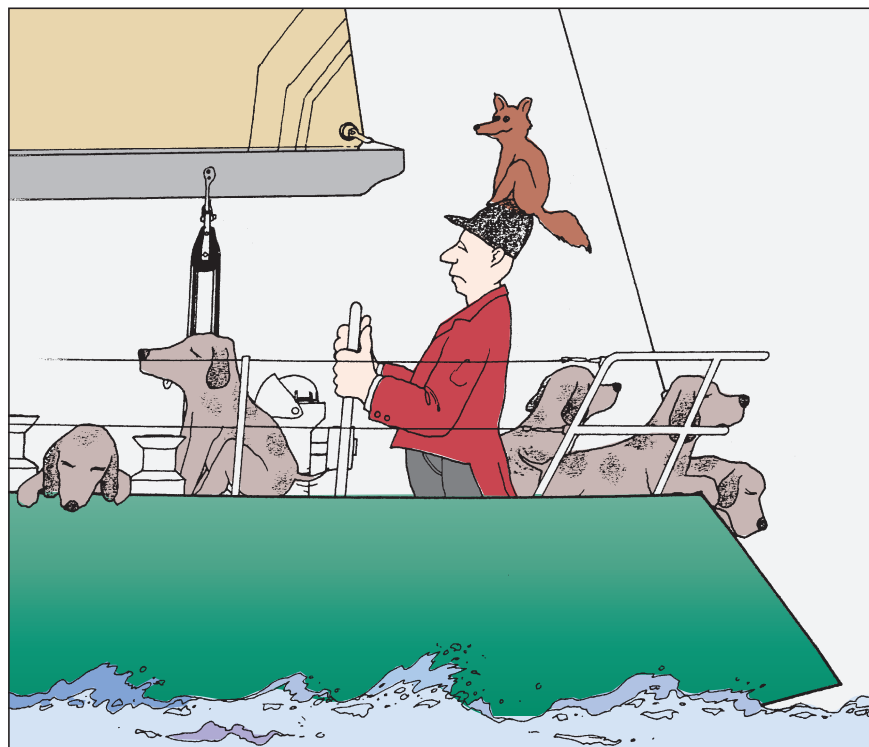
CONTENTS

THEME Top 100 Tips!	1
Training	2
Starting	3
Strategizing	4
Windshifts	5
Puffs and lulls	6
Rules of thumb	7
Steering	8
Sail trim	9
Boatspeed	10
Boathandling	11
Upwind tactics	12
Fleet strategy	13
Catching up	14
Potpourri	15
Reaching	16

All the photos in this edition (except the one on page 13) were taken by JH Peterson.

Make your boat more 'feel-friendly.'

1 The 'feel' of your boat is a critical factor in making it go fast. When you can feel the forces at work on your hull and sails, it's easier to understand what the boat needs. Set up the boat so it's easier to tune into your senses. For example, eliminate play in the steering system and use sheets that are as light as possible. Then sail your boat more by 'feel.'



Stay in the hunt.

2 Never give up! No matter how hopeless your position seems, the race is not over until all the boats cross the finish line. There are many times when large changes happen late in the race, so keep plugging. Catching just one or two boats may make a big difference at the end of the series. At least use the rest of the race to practice your boathandling, work on speed and figure out the wind so you will be stronger in the next race.



Tune up with two boats.

3 Whether you are testing on a non-race day or tuning up before the start, two-boat testing is often the most valuable way to use your time. Sailing alongside another boat is the only way to get an accurate idea of how fast you're going. It also helps you get in the groove, lets you practice changing gears and gives you a good chance to gather strategic information. So sail with another boat whenever you have the chance.

Play the time-and-distance guessing game.

4 This is an easy-to-play game that will help you tune your sense of time and distance. When you are practicing, heading out to the race course, or sailing around between races, pick a fixed point up ahead, and ask everyone to guess how long it will take you to get there. Then start your watches! It's fun, contagious, competitive and it will help your starting!



Sail blindfolded and rudderless.

5 During a training session, try taking away some of the 'crutches' you use to sail the boat. Most sailors depend heavily on sight for sailing, and this can dull their sense of feel. To improve sensitivity, close your eyes or wear a blindfold. This forces you to sail the boat by relying on balance and feel. (Make sure you have someone to keep a lookout and give feedback on how you're doing!) If your boat has a rudder that can easily be removed, try taking it out for a while (you may need to pull up your centerboard part way to balance the boat and make it easier to sail straight). To be successful, all crewmembers will have to tune into how the boat feels and work together to steer it with sails and weight.

Learn something from every race.

6 You can't win every race, but you can always learn something while you're racing. So keep trying to win, but develop a learning attitude for yourself and your fellow crewmembers. Spend time practicing, keep a daily journal, talk with the top sailors, correct mistakes and remember things you did well. Having a coach would be great, but it's not essential. If you can just see your skills improving at least a little bit, you will enjoy sailboat racing, and that will lead to better results.

Record your settings.

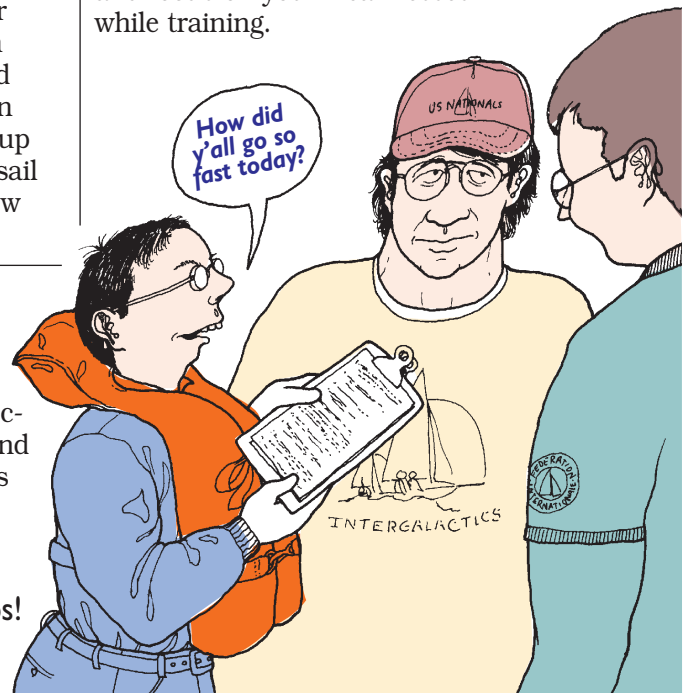
7 One of the keys for success in sailing is the ability to reproduce the way your boat was set up when you were going fast. This is especially true with tuning and trimming, where small adjustments can make big speed differences. So make sure all your rig and sail adjustments (e.g. turnbuckles, mast step, control lines) are calibrated and then start recording these settings when you are going fast.

Hold team meetings.

8 Try to get your crew together before and after every race. This is invaluable for preparation, improvement and motivation. Meet before you leave the dock or on the way out to the course. Review topics such as crew assignments, race procedures and weather forecasts. The goal is to get all crewmembers involved in the upcoming race. Then meet again after the finish to review what went well, work on things that could be improved and plan for the next race. The bigger your crew, the more important this is.

Know your strengths.

9 In the long run, it's very helpful to make a constant and honest appraisal of your specific strengths and weaknesses. This way you can 'play to your strengths' when racing and focus on your weaknesses while training.



Avoid high-risk areas. DANGER!

10 The start of a race is not usually the time to take a lot of risks. With the whole race in front of you, your goal should be to get a good, clear-air start that will allow you to follow your strategy. Because of this, you should generally stay away from the ends of the line. The areas near the pin and committee boat are usually congested and offer a low probability of accomplishing the goals above. Unless you are really good at starting tactics and boathandling, it's usually better to start where there aren't so many boats. Starting closer to the unfavored end with clear air is often better than being in the third row at the favored end.

**Luff on a closehauled course.**

11 As they approach the start, one-design dinghies often luff near the line for the final minute before the start. A common mistake is to sit with your bow on a course that's too close to the wind. This makes it hard to accelerate at the start because 1) you have to turn the boat down to a closehauled course, which is difficult when you're going so slowly; and 2) you can't trim your sails in until you bear off. The solution is to keep the boat on a closehauled course while luffing. This way you can trim in and accelerate immediately.

Beware the 'upwind end.'

12 When sailors say one end of a starting line is 'favored,' they usually mean that end is farther upwind. But "upwind" and "favored" do not always mean the same thing. Before deciding where to start, you must consider a number of factors like current, wind direction and wind velocity. If all these strategic variables are equal, the upwind end may be "favored." But sometimes these factors favor the other end. For example, if the pin end is farther upwind but there's more wind pressure on the right side, the committee boat end may be a better place to start. For this reason, be sure to distinguish between an end that is "favored" versus "upwind."

Look for a 'marshmallow.'

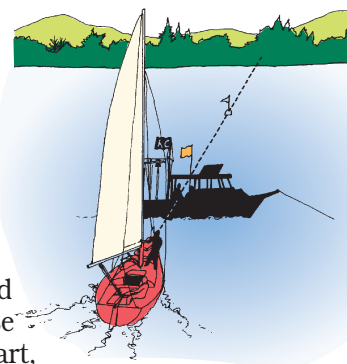
13 When you come off the line at the start, what's your biggest worry? For many sailors, it's the proximity and speed of the boat on their leeward side. In a perfect world, would you like to have a slow boat on your lee bow, or a fast boat? Obviously, most people would prefer a slower boat, so why not do your best to set this up? When you are making your final port-tack approach before the start, look for a slower boat that has already set up on starboard tack near the place where you want to start. Tack right behind (and just to windward of) them, and hold your position there until the gun.

Don't get to the line too soon.

14 A common mistake when approaching the start is getting to the line too soon. You definitely want to be near the line at the starting signal, but if you get there too early a) you won't have enough room to accelerate (and therefore you'll be slow at the gun); or b) you'll have to build speed by bearing off and reaching down the line. This is bad because it uses up your hole to leeward and takes you toward boats that hold the right of way over you. Instead, hang back far enough from the line so you will have room to trim in on a closehauled course and accelerate to full speed by the time you get to the line.

Use a line sight!

15 One extremely valuable tool for starting is a "line sight" (or range) using the pin end of the line and a point on shore behind it. Get a line site for every start (if possible) by sailing just outside the committee boat and looking through the pin end toward the land beyond. By lining up these two points as you approach the start, you'll know exactly where the starting line is.

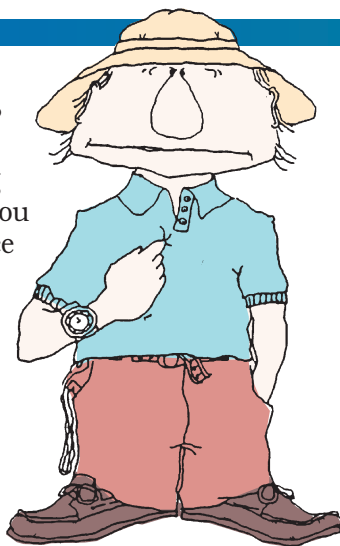
**Don't be a pig!**

16 It would be great to start every race with a large hole to leeward, but when the starting line is crowded don't be greedy. If you try to protect too much space it will attract other boats like moths to a flame, and you risk ending up with hardly any space at all. Instead, start by carving out a smaller hole that's not so tempting. As you get closer to the start (and other boats commit to spots on the line), try to increase the amount of space to leeward.

Strategizing

Stand up to see the course.

17 When you're looking for wind, the higher you can get the better. Gaining height allows you to see farther and gives you a more accurate picture of the water surface to windward. This is especially important when the wind is light and patchy and you need to find even the smallest puff. The easiest way to get a better view of the wind is simply to stand up on a high part of your deck or cabintop. This is easy to do before or during a race, and the extra few feet of height it gives you will provide a much improved view of the wind.



Make a plan for each leg.

20 A strategy, or gameplan, is your road map for how to get from one mark to the next as quickly as possible. In order to be successful, you must implement your plan as soon as you begin each leg. If you round a mark without any strategic plan, you may sail part of that leg in the wrong direction. So a good rule of thumb is to plan ahead before you get onto the next leg. This way you can round each mark in a position that will make it easier to implement your strategy.

Plan for contingencies.

18 In sailboat racing, it's hard to predict what other boats may do, and this can have a negative impact on your strategy. One good way to handle uncertainty is with contingency planning. A contingency is "a possible event that may or may not happen." For example, when there is a boat on port tack sailing to leeward of you, they may or may not tack at any moment. You have to consider this possibility and plan ahead for what you will do if they tack. Your contingency plan might be, "If they tack we will lee-bow them." Or perhaps, "If they tack we will bear off immediately and duck them." This will ensure that your response is prompt, effective and consistent with your strategy.

Strategize with your team.

19 If you want to make good strategic decisions, it's smart to solicit as much input as possible from the rest of your teammates. As they say, two (or more) heads are usually better than one! But this is difficult to do when you're in the middle of a race. However, it's usually possible to collect opinions from and discuss options with your team before the start. This will not only make everyone feel more useful, but will probably produce a better strategic plan.



Test the course with a buddy.

21 When you want to compare wind or current on opposite sides of the first beat, a friendly 'strategy partner' can be very helpful. Begin with a 'rabbit' start near the starting line and sail fast toward opposite sides of the course. Then tack and see which boat crosses ahead. This will give you a good idea about which side of the course was favored (though it may well change before the race). You will get more reliable information if you have time to do two or more tests (switching sides each time).

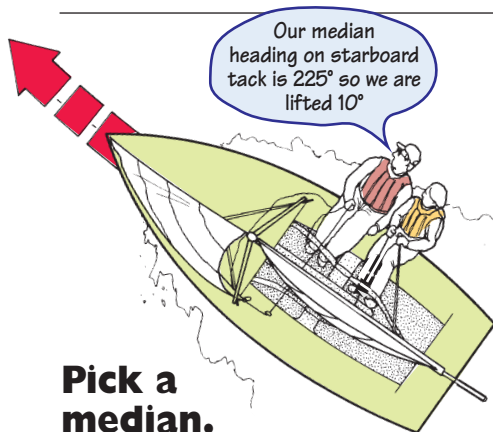


Converge with a purpose.

22 When the windward leg is crowded, it's important to keep following your gameplan. If you allow other boats to dictate where you go, you'll end up in strategic limbo. This is especially true when boats are crossing on opposite tacks. Too often sailors enter a port-starboard situation without any thought about how they will exit it. A port tacker, for example, often decides to keep clear by tacking, even when she actually prefers the right side of the beat. This doesn't make sense, so keep your strategy firmly in mind when converging with other boats.

Use sheer as a clue.

23 It's important to know about wind sheer (different wind direction aloft) because very often sheer is an indicator of a windshift to come. If the wind is sheered to the right up top, for example, it's a good bet that you will see a right shift at surface level sooner or later. Consider this possibility in your strategy for the next leg.



Pick a median.

24 When the wind direction is oscillating, it's key to figure out the median, or average, wind direction. This is usually the direction that's midway between the farthest left shift and the farthest right shift you've seen. It's critical to know this number because your strategic choices hinge on whether the wind is to the left or right of this median. So always choose a median heading for each tack, and remember these numbers may change during the race.

In heavy air, sail for shifts before puffs.

25 When you're sailing in a lot of breeze, your boat is usually overpowered. Because of this, finding more wind velocity probably won't help you go much faster or point any higher. In fact, in some cases more wind might even slow you down. A good wind shift, on the other hand, is extremely valuable. It will instantly move you to a higher ladder rung and allow you to aim closer to the windward mark. That's why, in windy conditions, it's probably better to sail for shifts before puffs.

Look for shifts off the land.

26 When the wind is blowing at an angle from the land, it tends to bend more perpendicularly off the windward shore. This effect is more pronounced as you get closer to shore, so if you sail the tack that takes you closer to land you'll get progressively headed. This "geographic shift" is like a persistent windshift, but it's easier to predict because it happens in the same geographic area when the wind is blowing a certain direction. If the true wind is blowing straight off the shore it will act more like an oscillating breeze, so look for frequent and substantial back-and-forth shifts closer to land.

Oscillating or persistent?

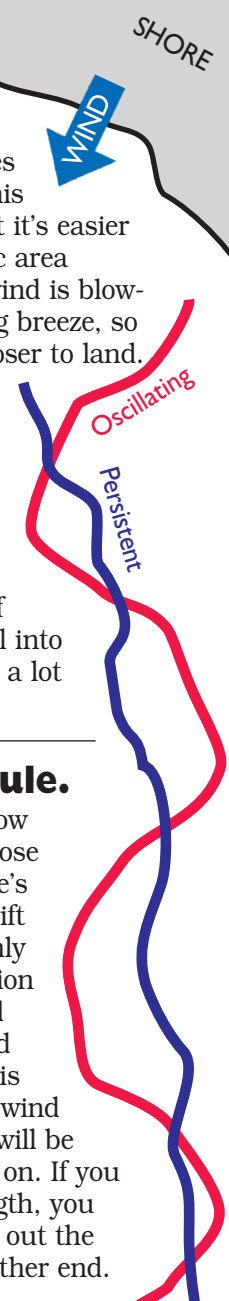
27 In most races, the windshift pattern is either oscillating or persistent. On every leg, you must decide which way you are going to play the wind. This decision influences many of your strategic and tactical moves and will greatly affect your success. For example, if you think the wind is shifting persistently, you should sail into a header. But if the wind is really oscillating, you will lose a lot by doing this. So, is the wind oscillating or persistent?

Sail fast on a lift.

28 In a shifty wind, it's usually better to sail slightly faster than normal while you are on the lifted tack. This maximizes your VMG in the median wind direction. And second, it brings you to the next shift (header) sooner. The more you are lifted, the faster you should sail. As you get headed to the median, slow down slightly until you are sailing at your normal upwind speed and angle.

Use the '10-25' rule.

29 Few sailors know how much they gain or lose when the wind shifts. Here's an easy guide: In a 10° shift you will gain or lose roughly 25% of the lateral separation (perpendicular to the wind direction) between you and other boats. Remember this as the "10-25" rule. If the wind shifts 5°, the gain or loss will be roughly half (12%) and so on. If you know the starting line length, you can use this rule to figure out the advantage of starting at either end.



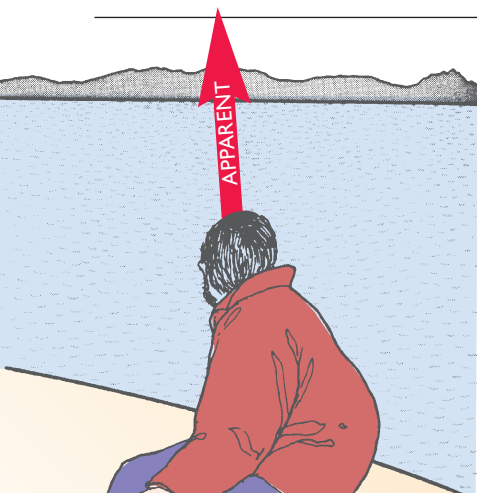
Puffs and Lulls

Don't tack on a 'velocity header.'

30 When sailing in shifty winds, a good rule of thumb is to tack on the headers. Sometimes, however, what looks like a header is not really a shift in wind direction. When you sail into a lull, your apparent wind moves forward temporarily and you see a velocity header. This is not necessarily a good time to tack since it means you will be maneuvering in a lull, which is slow. If you're not sure whether you just got a velocity header or a "real" one, wait a few seconds (since a velocity header will mostly disappear when your boatspeed adjusts to the new wind velocity).

Head for puffs downwind.

31 On runs, a puff not only gives you better speed through the water but also usually allows you to sail quite a bit lower. An increase in wind velocity affects your angle much more on a run than on a beat. For this reason, puffs on runs are a lot like headers because they let you sail lower and closer to the leeward mark. That's why you should usually go for pressure first downwind, especially in lighter air.



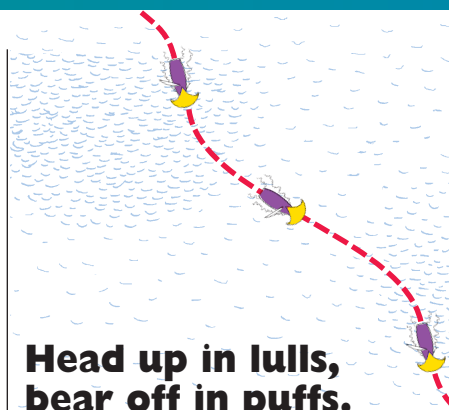
Where to look for puffs.

32 Sailors trying to find the next puff often look straight upwind (toward the true wind), but this is too far aft. The puffs that are directly to windward will reach you only if you stop right where you are. But when you are moving forward, they will pass behind you. The place to look for the puffs that will hit you is toward your *apparent* wind. This is the direction of the wind you feel on your body and the place where your masthead fly and shroud telltales point.



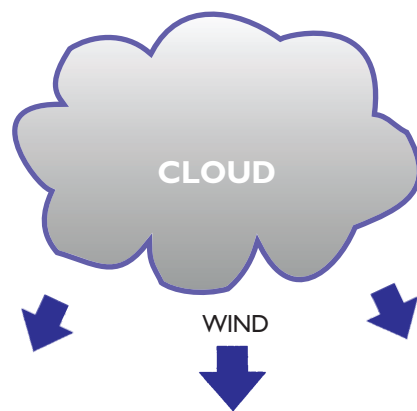
In light air, look for the best pressure.

33 When you're racing in light air, a small increase in wind velocity usually means a large relative increase in boatspeed (and you will point higher, too). But in heavy air, that same increase will improve your speed only slightly (and it probably won't help pointing). This means that puffs are a lot more valuable, relatively, when the wind is light. So in those conditions focus on finding and sailing toward better velocity. This will usually help your performance more than sailing for windshifts.



Head up in lulls, bear off in puffs.

34 This is a basic and valuable piece of advice for any reach or run. When the wind pressure lightens, head up a little to keep pressure in your sails and maintain speed. This will also help you sail through the lull to the next puff more quickly. When you get a puff, bear off to maximize your VMG to leeward (and allow yourself to sail high again in the next lull). Bearing off also makes you sail more in the direction the puff is traveling, so you will stay in the puff longer.



Watch clouds for wind.

35 Clouds can have a significant effect on wind pressure and direction. The bigger the cloud, the more potential there is for associated changes in the wind. Often the breeze on the downwind edge of a cloud 'fans out' in front of the cloud. It is also stronger there too, as if the cloud is pushing more wind in front of it. Therefore, it's generally good to sail toward clouds that are coming downwind across your course area. Once the leading edge of a cloud passes, there is often less pressure underneath or behind it.

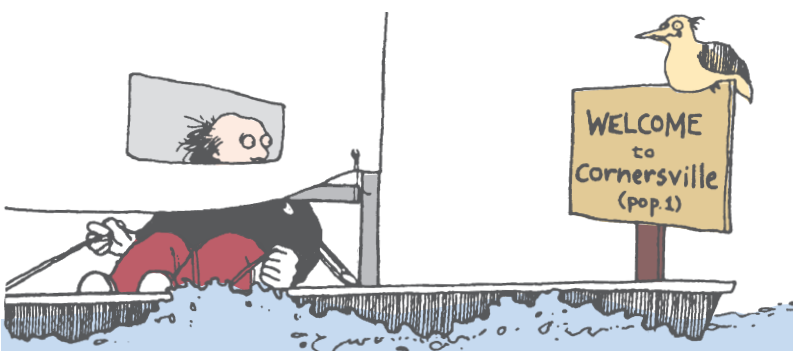
Stay between other boats and the next mark.

36 'Covering' when you're ahead is generally a good rule of thumb. The basic idea is to position your boat on an imaginary line between the boat(s) you need to beat and the next mark. This will put you between your competition and the mark and should make it, in theory at least, impossible for them to get past you. Of course, it's easier to cover on a beat because you can use your wind shadow offensively and you don't have to worry about clear air. On a run, however, you must also avoid the bad air of the boat(s) you are covering.



On beats, sail toward shifts.

37 One thing we know about the wind is that it is almost always shifting. If you can predict the next windshift, a key strategic rule of thumb is to sail toward that shift. This means that if the wind will shift right you should sail on port tack; if you expect it to shift left, sail on starboard. In an oscillating breeze, sailing toward the next shift is similar to tacking on the headers. In a persistently shifting breeze, sailing toward the next shift is the same as digging into the favored side. In both cases, this strategy works for beats because when the wind shifts you end up on a higher ladder rung than boats that went the other way.



Avoid corners and laylines.

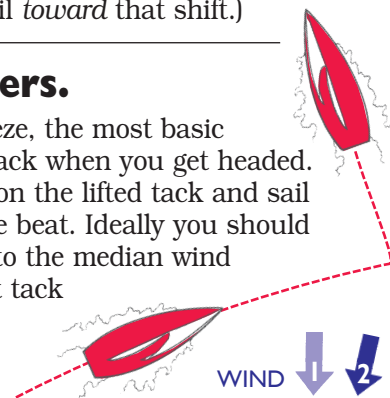
38 On beats and runs, the corners and laylines are usually bad places to be because 1) you may overstand the mark and therefore sail extra distance; 2) you will lose to other boats if you get a lift or a header; and 3) other boats may tack or jibe on you and give you bad air all the way to the mark (or make you do two extra tacks or jibes and overstand the mark). This is why it's usually better to stay away from laylines, especially when you are far from the windward mark.

On runs, sail away from shifts.

39 When running, your goal is to get to a lower ladder rung, so sail away from the next shift you expect. This puts you in position to jibe on the shift and stay on the headed tack. (But if the windshift brings an increase in velocity, it may pay to sail toward that shift.)

Tack on the headers.

40 In an oscillating breeze, the most basic rule of thumb is to tack when you get headed. By doing this you will stay on the lifted tack and sail the shortest distance up the beat. Ideally you should tack when you are headed to the median wind direction (Tip 72). But don't tack if the header is due only to a decrease in wind velocity (Tip 30).



Sail the longer tack first.

41 On a beat or run, you always have a choice of two tacks: port or starboard. Unless you have a strong reason not to, you should sail the longer one first. This is the tack on which your bow is pointed closer to the mark; it's also the tack that takes you away from the nearest layline. By heading toward the middle, you have a better chance to play the next shift. If you sail the shorter tack first you get to a layline sooner, which limits your options.

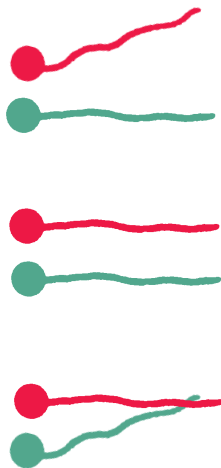
Protect the right side.

42 If other factors are equal, protect the right side of the beat since that will give you the starboard-tack advantage when you converge with other boats. This is especially important on short beats and whenever you are close to the windward mark. On runs, protect the left side (looking downwind) since this will put you on starboard tack and inside as you approach the leeward mark.

Steering

Steer by the middle telltales.

43 When you are steering by telltales on the luff of the jib, try to use ones that are about half way up the sail. These may be a bit harder to see (compared to telltales that are lower), but they will give you a more accurate reading for the whole sail than telltales closer to the top or bottom of the sail. Move forward and outboard to see the middle telltales more clearly.

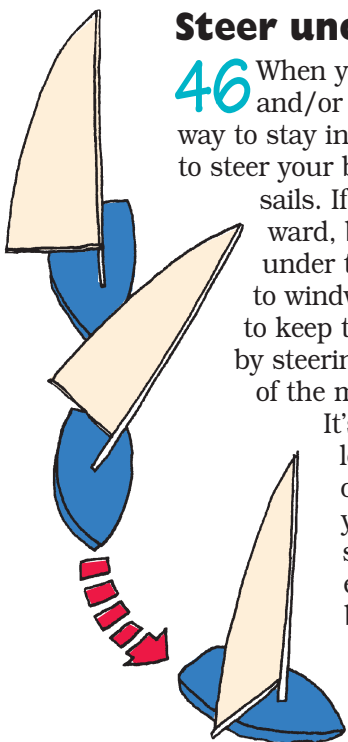


Move left, turn right.

44 Before moving your tiller or wheel to turn the boat, use weight placement to steer by changing the boat's heel angle. If you want to turn left, move your weight to the right so you heel the boat to starboard. When you want to turn right, move left. This works best in lighter air and with smaller boats, but it will help to some extent in all boats and any condition.

Minimize helm downwind.

45 When sailing upwind, it's good to have a bit of windward helm to give the rudder more feel and lift. But on a run or reach an off-center rudder just creates drag, and this is slow. Therefore, adjust the trim of your boat and sails to keep your rudder centered and your helm neutral as much as possible. The boat should almost steer itself in a straight line.



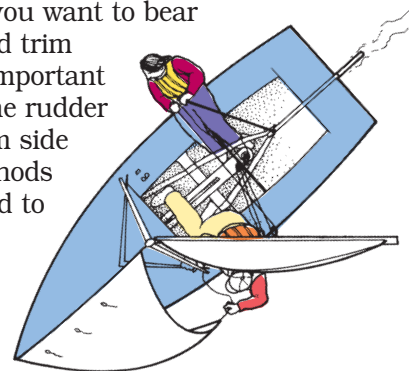
Steer under your sails.

46 When you're running in windy and/or wavy conditions, the best way to stay in control and going fast is to steer your boat under the rig and sails. If your boat heels to leeward, bear off to get the hull under the mast. If your boat heels to windward, head up. The idea is to keep the mast roughly vertical by steering your boat so the bottom of the mast stays under the top.

It's like trying to balance a long stick vertically with one end in the palm of your hand. If you have a symmetrical spinnaker, an easy guide is to aim your bow at the center of the sail's foot (where there is often a vertical seam).

Always use sails for turning.

47 Turning the rudder always makes you slower, so any time you want to turn your boat you should use sail trim to help as much as possible. When you wish to head up, trim your mainsail tighter (and ease your jib a little); when you want to bear off, ease your mainsheet (and trim your jib). This is especially important in heavy air when turning the rudder and moving crew weight from side to side are less effective methods of turning. If you've ever tried to bear off behind a starboard tacker without easing your mainsheet, you know that sail trim has a huge impact on where the boat goes.



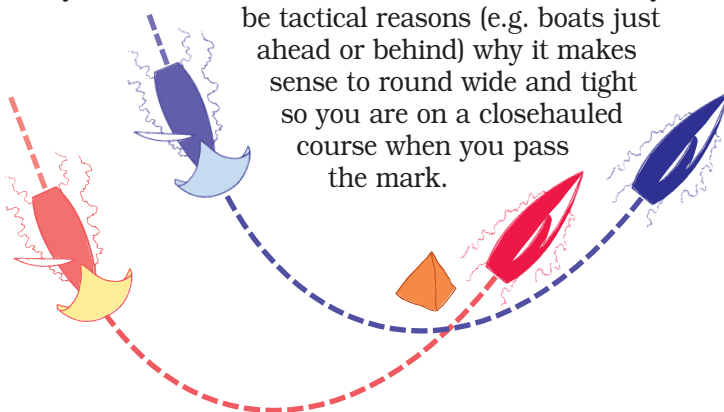
Try using a 'wider groove.'

48 When sailing upwind, it's hard to keep your boat in the groove all the time. As soon as conditions change (e.g. you hit a wave or lull), most sailors lose the groove for at least a little while. That's why it's often good to set the boat up so it has a wide groove, especially in tough conditions like shifty wind and chop. Ways to do this include twisting the sails, easing sheets slightly, making the sails fuller, moving draft forward (especially in the headsail), heeling a little more, footing slightly and so on. This will make the boat more forgiving and easier to steer fast.

Don't always swing wide.

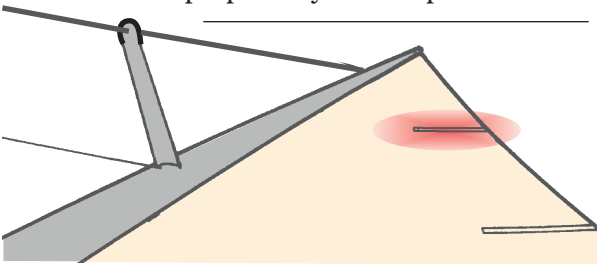
49 Conventional wisdom says you should round a mark by swinging wide on the near side and close on the far side (like the red boat below). However, this is not the fastest way to get around the mark. Unless you are worried about your position relative to other boats, it's better to approach the mark closer on the near side, pass it on a beam reach, and end up farther from the mark as you turn up to closehauled (like the blue boat). The key is making your turn so the mark is at the *bottom* of your arc; if you don't do this you will sail extra distance. Of course, there may

be tactical reasons (e.g. boats just ahead or behind) why it makes sense to round wide and tight so you are on a closehauled course when you pass the mark.



Set up for the lulls.

50 When the wind is puffy, it's impossible to set your sails correctly for all the different velocities you will see. If your sails are too full, you'll be slow in the puffs, but if they're too flat you will struggle in the lulls. The best choice is usually to err on the side of tuning for the lulls. That's because it is relatively easy to go fast in puffs, and you can live with being overpowered temporarily. But in the lulls you need lots of power; if you don't have it you will struggle to keep up with your competition.



Top batten parallel.

51 Getting the right main trim is critical for good speed in any condition. If you overtrim the main, it will stall and be slow. If you undertrim the main, you'll be faster, but you won't be able to point. The key is finding a happy medium that works for both speed and pointing. The easiest guideline is trimming the sheet so the top batten is parallel with the boom. In light air and lump, let the top batten angle off to leeward a bit. In flat water and more wind, trim the sheet hard enough so the top batten angles to windward.

Don't cleat the sheet!

52 The wind is always changing so if you want to go fast you must constantly adjust the trim of your boat and sails. Therefore (if possible) don't cleat your mainsheet! This line is also the best way to feel your boat's pulse. Cleating it would be like turning on cruise control in a car race. Of course, when it's windy the helmsperson may need help holding the sheet, or you may have to put it around a winch. Just try not to use a cleat.



Trim with a curl.

53 When flying a spinnaker (either asymmetric or symmetrical), it's slow to overtrim the sheet. To make sure the chute rotates forward as far as possible, keep easing your sheet until you see a slight curl along the luff of the spinnaker. Though this means you give up a small amount of sail area, it's usually much faster to have the sail eased all the way with a small curl than to get rid of the curl but risk having the sail overtrimmed some of the time.

When you're going fast, trim harder.

54 When your boat feels good (like it's going fast through the water), trim the main a little harder and point the bow up slightly higher. If the boat feels bad or starts to slow down, ease the mainsheet a bit and bear off. Once you are going fast again, start trimming again. This is a never-ending cycle. Try to keep trimming the mainsheet harder to help pointing, but when this makes you go slower ease the sheet for speed.



Judge trim by speed, not by looks.

55 When trimming your sails, the goal is to make your boat go as fast as possible. It's nice when the sails look beautiful too, but this is not your objective. The key is to trim for performance, not appearance. The way the sails look is just a guide that may help you go fast. So don't be too rigid about what you're looking for. Sail shape is a means to an end – what really matters is how well you perform relative to other boats.

Go fast at the start.

56 When you expect the wind velocity to change after the start, how should you set up your sails? Your number one priority should be to optimize your sail trim for the wind you will have during the first few minutes after the start. When you come off the line, you want your boat to be as fast as possible so you can pop out ahead of the pack. If the wind does change later in the leg or race, it's much better to be leading the fleet with the wrong set-up than back in the pack with perfect sail trim.

Boatspeed

Judge speed against other boats.

57 In sailboat racing, speed is relative. It doesn't really matter what your knotmeter says or how fast your boat feels – the only true measure of performance is how well you are going compared to the boats around you. Your boat's performance is a subtle combination of speed and height that you can only see when sailing alongside another boat. Therefore, keep close tabs on how you're going relative to nearby boats.

Look for a few 'speed wrinkles.'



58 On many boats, it's fast to leave the mainsail and genoa luff tension loose enough to have at least a hint of horizontal wrinkles in the lower half of the luff. This keeps your sail powerful and helps pointing. Two exceptions are heavy air and an older sail when you need more luff tension to flatten the sail and move draft forward.

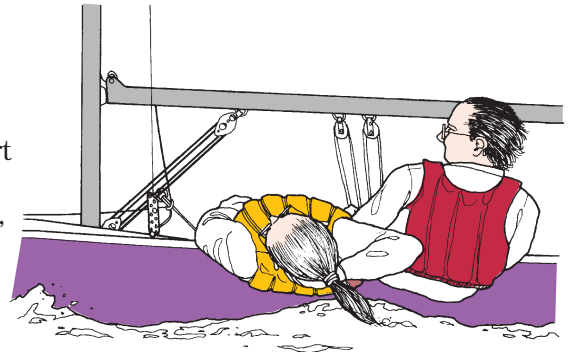


Use legal kinetics more often.

61 'Kinetics' is the use of body motion and weight to help steer and balance the boat while racing. Though there are some sailors who abuse this technique, most sailors do not use legal kinetics nearly as much as they could. For an in-depth explanation of what's legal and illegal under the current rules, check out the rule 42 interpretations on the ISAF web site: www.sailing.org/raceofficials/rule42/index.php

Go fast first, then point.

59 The ability to point high is great for tactics, strategy and speed, but you can't just aim your boat closer to the wind. Pointing ability is closely tied to speed, so in order to point higher you must start by going faster. This gets the water flowing faster over your foils, which increases their efficiency and produces lift. When pointing is a problem, the natural response is simply to turn the boat toward the wind, but this is the opposite of what's needed. Instead, you should aim lower and go faster first – then slowly try pointing higher. (Of course, you may also need to make other changes to improve pointing.)



If you're slow, make a change.

60 When you are going fast, keep things roughly the same. When you have a case of the "slows," change something. Start by adjusting things that will have the biggest impact on your boatspeed. My first change is almost always to ease (or tighten) the main-sheet. If this doesn't help, try changing other variables. You'll learn more if you change only one thing at a time and wait long enough to see its effect, but it's hard to be this patient while racing.

Copy the fast boats.

62 Your competitors are a great source of go-fast ideas, so keep an eye on them. Pay particular attention to boats that are going faster than you, and don't be afraid to copy their set-up. For example, how are they trimming their sails and positioning their weight in different conditions? You can learn a lot just by watching them on the race course; many of these sailors will also be willing to share ideas if you talk with them ashore.

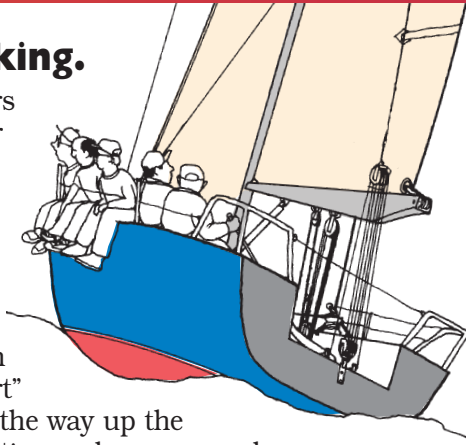
Be ready to change gears constantly.

63 Sailing is a challenge because conditions are always changing. You can't just trim in your sails, cleat them and expect to win races. You must be ready to "shift gears," or adjust the trim of your boat and sails, constantly to match changes in the wind and water. As Buddy Melges often says, you must "present your boat for Mother Nature." In other words, you have to anticipate the puffs, lulls, shifts and waves that are coming. And when these reach your boat, you should have already made adjustments for them (rather than reacting after they hit).



Pace yourself when hiking.

64 Even the most athletic sailors can't hike all the way out for an entire race, so save your best hiking for when it makes the most difference. Use two hiking modes: 1) "flat-out" style where everyone straight-leg hikes as hard as they can (on one-designs) or leans with both arms and legs straight out (on boats with lifelines); and 2) "comfort" style, a position you could hold all the way up the beat. Use 'flat-out' mode at crucial times when you need speed, like right after the start or when you're close with another boat. Use 'comfort' mode at other times to conserve energy and strength.



In light air, be smooth.

68 When the wind is light, you don't want elephants for crew. So make sure everyone shifts into "light-air" mode. Plan movements carefully and avoid unnecessary disruption. When you must move, be gentle and smooth, as if you are walking on eggs; otherwise you'll kill your momentum. A light-air tack, for example, should be a smooth and slow event. Don't just run over to the other side like you would do in heavy air, because that could shake all the wind out of your sails.

Jibe when you're going fast.

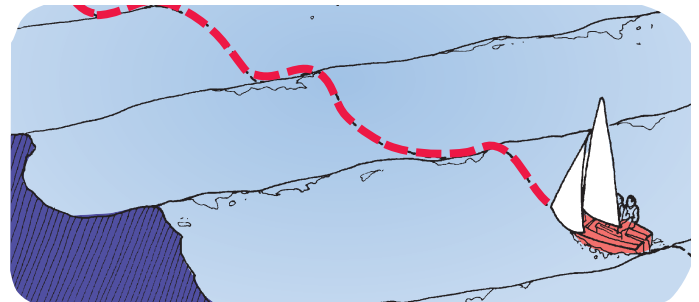
65 When the wind is blowing hard enough to make jibing risky, it seems at first that you should jibe when your speed is slow. But it's better to jibe when you are sailing as fast as possible. Speed has two advantages: 1) it makes your hull a more stable platform; and 2) the faster you are going, the less apparent wind pressure you'll have on the sails. One of the best times to jibe is while surfing down a wave. When jibing in heavy air, speed is your friend.

Take your chute down early.

66 One of the costliest mistakes at leeward marks is leaving your chute up too long. Carrying your spinnaker for an extra length or two will gain you only a small distance, but a takedown snafu can cost you tons. Therefore, unless you are fighting for an inside overlap, make the smart, conservative choice by dropping a little early and not risking a bad takedown.

Power up before you hit waves.

69 When you are sailing in waves, it's important to make sure your boat is powered up and going fast when you hit the bad ones. Anticipation is key. The secret to maintaining speed through a bad wave is shifting gears *before* you get to the wave. That means you need enough warning to power up your sail plan before the bow digs into the wave. So as soon as you see a bad wave coming, make sure everyone knows. Then ease sheets, bear the boat off for speed, move your crew weight aft and find a place to hit the wave.



Don't maneuver in lulls.

67 Another good rule of thumb is that you should never make a maneuver in a lull unless you have a very, very good reason. Whenever possible, time your maneuvers (e.g. tacks, jibes) so you perform them in good wind pressure. If you make turns without much wind you will lose a lot in each maneuver.

Keep a lookout in blind spots.

70 The entire crew can help sail the boat fast and smart by keeping their heads out of the boat. Watch for puffs, lulls, waves and converging boats. Pay special attention to areas where the helmsperson has a hard time seeing. The two primary ones are behind his or her back and behind the genoa or jib. By focusing on these 'blind spots,' you'll avoid last-second surprises that could interrupt your game plan.



Upwind Tactics

Cross other boats when you can.

71 When the wind direction is oscillating, it usually pays to tack on the headers. But if changes in the wind are subtle or gradual, it may be easier to recognize shifts by watching the relative positions and headings of other boats. For example, a header will make you look better relative to boats on your windward 'hip.' If suddenly it looks like you have gained the ability to cross boats on your hip, it's probably a good time to tack and consolidate your gain. The corollary is that you don't want to let other boats cross you. When they are sailing on a lift, tack to leeward and ahead so you beat them to the next shift.

Tack when headed to the median.

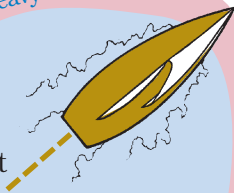
72 When the wind is shifty, your basic strategy is to tack on the headers. But exactly when is the best time to tack? The biggest mistake for most sailors is sailing too far into the header. If you keep going until you get the maximum shift, you will sail roughly half the beat on headers instead of lifts, which is not fast. To avoid this, tack when you get knocked to your median heading.

'Spend' your lead.

73 In one-design racing, it doesn't matter how far you are ahead of another boat when you cross the finish line. Therefore, don't take chances trying to maintain or build a large margin. In fact, it's often smart to "spend" (i.e. use up) some of your lead in order to stay in a conservative position and make sure you beat the boat behind.

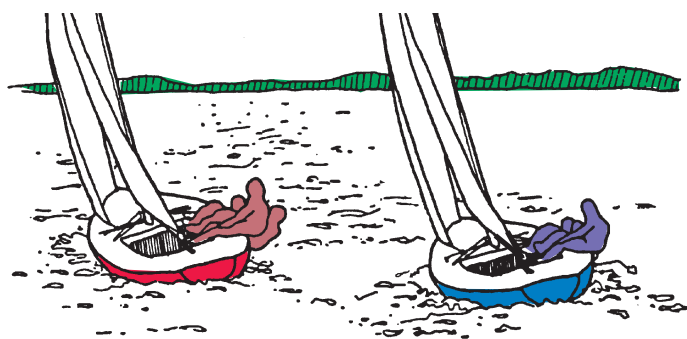
Avoid bad air.

74 Boats always cast wind shadows, but these are more harmful in light air. When a stream of slow-moving air is interrupted (e.g. by a boat's sail plan), it takes a long time for that stream to return to normal. In light air, you may feel another boat's shadow as far as 10 lengths away, and when you are in that shadow, you may have only half as much wind as boats in clear air. This is a problem because you were already underpowered. In heavy air, the wind stream re-forms much more quickly, so you might feel a shadow only 5 boatlengths to leeward of another boat. And that won't hurt as much because you still have a relatively strong breeze.



Wave a port tacker across.

75 When you have a good lane on starboard tack and you want to keep going toward the left side, don't automatically yell "Starboard" to every port tacker that tries to cross in front of you. Having them tack on your lee bow is probably not the best thing. It's often much better to let the other boat go across, even if this means you will lose a little by bearing off behind them. When you are still several lengths away, yell "Go ahead," or other words to make it clear they can keep going. Just be sure to communicate loudly and clearly.

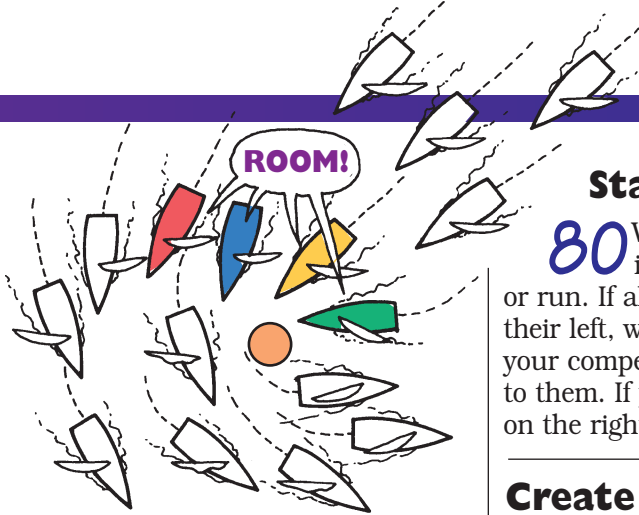


Use a blocker to hold your lane.

76 A second way to protect your lane on starboard tack is by using a "blocker." A blocker is another boat on starboard tack that's to leeward and ahead of you, in a position to intercept incoming port tackers. Those boats will either have to lee-bow the blocker or duck behind the blocker (and go behind you too), leaving you free to continue sailing in your lane.

Bear off at port tackers.

77 A third way to protect your clear-air lane on starboard tack is to bear off slightly toward a converging port tacker when you are roughly three or four boatlengths away. The idea is to force her to tack earlier (to avoid you) and then head up, using your extra speed to gain separation to windward. If you do this right, it will help you hold your lane on starboard tack for at least a little while longer.

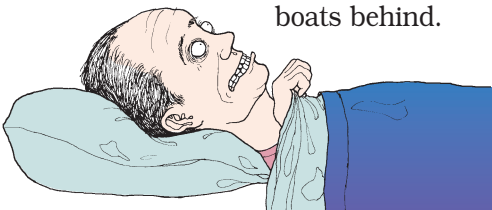


Avoid needless risk.

78 When you race sailboats, every choice you make involves a certain risk. For example, if you try to squeeze inside at a crowded jibe mark, you are taking a relatively large chance. Before you make any race decision, do two things: 1) Consider your options and how much risk is involved with each. In other words, what is the probability of success for each course of action? 2) Decide how much risk you are willing to take. When it's early in a race or series, you probably shouldn't take too many chances. But as you get near the finish, you may be willing to be more risky to achieve your goals.

Are you happy?

79 When you make tactical and strategic plans during a race, keep the answer to one important question in mind: "Are you happy with your current position in the race?" In other words, do you need to pass boats ahead of you, or are you content to hold your place? This is a critical bit of information for making decisions about how much risk to take. For example, if you need to catch three boats on the last leg to win the regatta, you might decide to take a flier. But if you can win the series simply by holding your position, you should be more conservative and cover the boats behind.



Stay on the favored side of other boats.

80 When your strategy says the right side of the course is favored, it may not be enough simply to sail toward that part of the beat or run. If all the other boats go even farther right, you are actually on their left, which is not good. Since your only goal in the race is to beat your competitors, you must use your strategy to position yourself relative to them. If you like the right side, for example, you should generally stay on the right side of the boat (or boats) you want to beat.

Create good luck.

81 Perhaps you think it's crazy to suggest that sailors may have some control over their own luck. After all, isn't luck random? I used to think so until it became apparent that the best sailors usually have most of the good luck! Coincidence? I doubt it. I agree with the person who said luck is 'what happens when preparation meets opportunity.' If you are well-prepared and work hard, you are more likely to be lucky.



Know the score.

82 When you are trying to make a strategic game plan and assess the amount of risk you're willing to take, you have to know where you stand in the fleet. If you're in 3rd place for the regatta, for example, you will have a very different approach than if you're in 10th. So write down the series scores and bring them out with you. Of course, there are many races where the overall scores don't matter, such as the first few races of a series. But after that it may be important to know the standings.

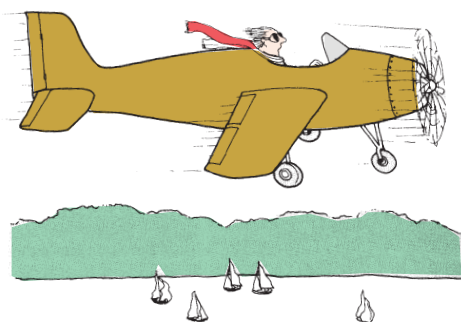
Beware of the middle.

83 On most beats, it's good to avoid the edges of the course, but when you have light air and a large fleet there often seems to be less wind in the middle of the course than on either side. That's probably because a large fleet acts like a snow fence, and the wind has a hard time getting through all the sails. As a result, the breeze tends to bend around and lift up over the bulk of the fleet (which is in the middle). So pick a side and go there; if you play the middle you may get passed on both sides!

At the end of a run, protect the left side.

84 At the beginning of a run, your choice about whether to go left or right should be based primarily on strategic factors like the wind pressure and shifts. As you get closer to the leeward mark, however, think tactically. If you are rounding the mark to port, it's smart to play the left side of the course (looking downwind). This will give you two advantages over the fleet – you'll be inside at the mark and also on starboard tack when you converge with the other boats.



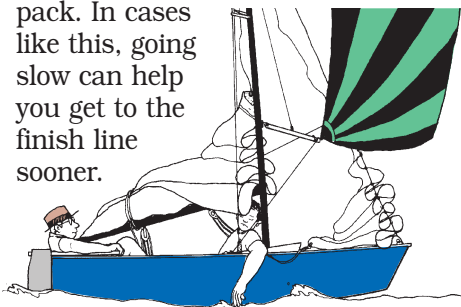


Drop out of the sky.

85 One of the toughest things about coming from behind is psychological. The key is to stay focused on the present and not get hung up on how you ended up near the back of the fleet. Here's a psychological game I play when I find myself back in the pack: I pretend that someone else was driving the boat and got it into a bad position. Then I was magically dropped onto the boat from an airplane to help make a comeback. This does a number of things: 1) it keeps me from blaming myself for making a mistake; 2) it helps me look at the current situation objectively; and 3) it gets me psyched up for the challenge of improving my position during the rest of the race.

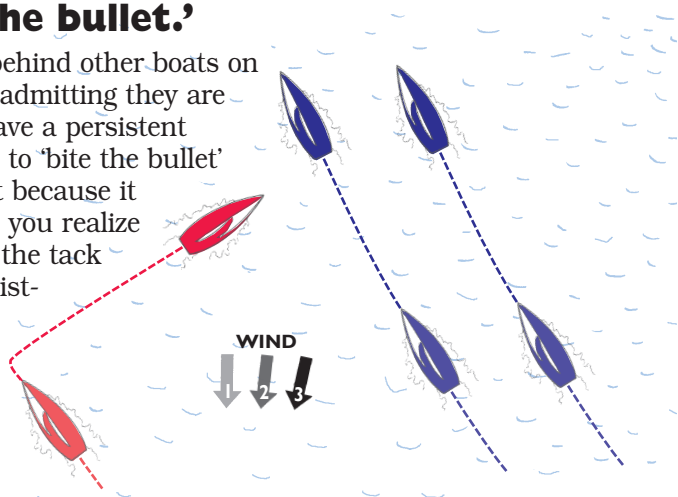
Slow down to win.

86 Sometimes when you are back in the pack you have to go slow before you can go fast. That's because when you're racing amidst a fleet, you have to consider tactics in addition to strategy. There are certain times when slowing down allows you to maneuver into a better position relative to other boats. One example is at a mark when you have to put on the brakes to avoid rounding outside a pack. In cases like this, going slow can help you get to the finish line sooner.



Be willing to 'bite the bullet.'

87 It's never easy to cross behind other boats on a beat since this means admitting they are ahead of you. But when you have a persistent windshift, sometimes you have to 'bite the bullet' (i.e. face something unpleasant because it cannot be avoided). As soon as you realize what the wind is doing, get on the tack that takes you toward the persistent shift and keep going, even if it means passing behind your competitors. This may seem painful at first, but you will gain in the long run by doing the right thing.



Minimize mistakes.

88 Although it's very difficult to sail a perfect race, your goal should always be to minimize the number of mistakes you make. This is especially important when you are behind and trying to catch up. Be patient and don't take unnecessary risks. Try to make as many good decisions and maneuvers as possible so you will have a decent chance to pass the boats ahead of you when they make errors.

'Start' the race again.

89 If you often round the first mark in pretty good shape but seem to lose boats after that, here's an idea: When you get to the mark, pretend the race is starting all over again. In this new race, your only goal is to a) avoid losing any boats before the finish; or b) see how many boats you can pass before the finish. Keep track of how well you do, and see if this helps your overall results.



Pass one boat at a time.

90 When you are playing catch-up from behind, don't try to make up your deficit all at once. This is risky and usually not possible. It's better to be conservative and methodical, picking up one or two boats at a time, rather than aiming for one large gain with a small chance of success. Go for a lot of small gains, each with a better probability of working. Be like the tortoise instead of the hare, especially early in a race or series.

Always 'shoot' the finish line.

91 You can often catch a lot of boats if you keep pushing all the way to the finish. One end of the line is almost always favored, and that's where you should finish. Make your final approach about a boatlength or so below the layline to this favored end, and then "shoot" the finish by luffing up head to wind so your momentum carries you across the line.

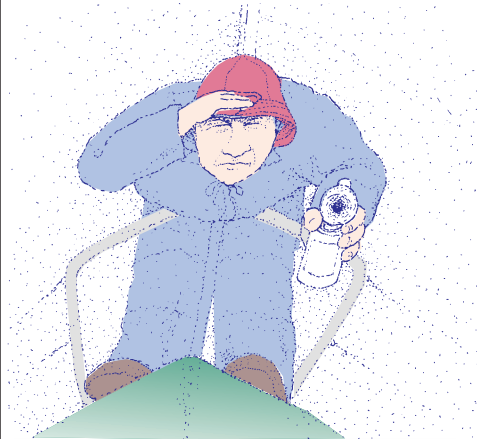


Before you round a mark, find the next one.

92 One of the easiest ways to lose a race is by sailing to the wrong mark, or by sailing in the wrong direction when you can't find the next mark. Therefore, make sure you know the course and the mark descriptions. Before you round any mark, try to locate the next mark visually. I usually assign this responsibility to one crew member. His or her job is to find the next mark and point it out to the rest of the crew *before* we get onto the next leg. This way, when we round the mark, we already know where we are going and we can implement our strategy.

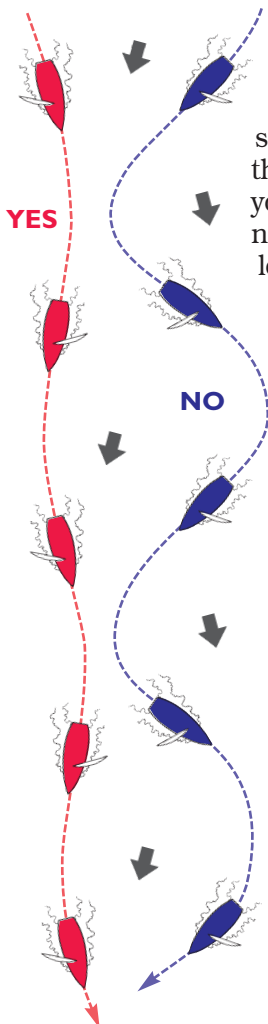
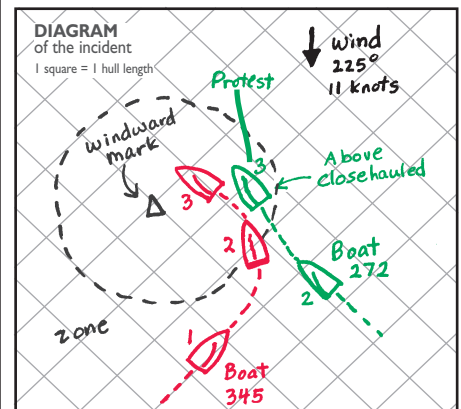
Keep a good lookout.

96 No two sailboat races are ever alike, so one key to success is being prepared for whatever may come your way. This means you have to keep your head out of the boat. Assign one crew member to look for puffs, lulls, waves and flat spots. When sailing in traffic, watch out for incoming boats. It's obvious you must do this when you are a give-way boat. But even when you have the right of way, a good lookout is essential. For example, if you don't see a converging port tacker early enough, she may tack on your lee bow and force you to tack away.



File a valid protest.

97 When you want to protest another boat, make sure you follow all the steps required to make your protest valid. You must hail the word "Protest," fly a red flag (on boats over 6 meters) and file a written protest within the time limit, or else your protest will not be heard. For more details, see rule 61 and your regatta's sailing instructions.



Jibe on the lifts.

93 When you're sailing upwind in an oscillating breeze, you should tack on the headers so you sail on the lifts. On runs, however, you want to jibe on the lifts so you sail on the headers. By jibing each time you are lifted, you will always be sailing *away* from the next shift (the right move on runs), and you can sail lower and closer to the leeward mark (i.e. you'll climb down the ladder rungs and maximize VMG to leeward).

Respect current in light air.

94 In all wind conditions, the presence of current will affect your sailing wind and your course relative to fixed marks, so always be aware of current. This is especially important in light air because the speed of the current is more significant relative to your slow boatspeed and the low true wind velocity.

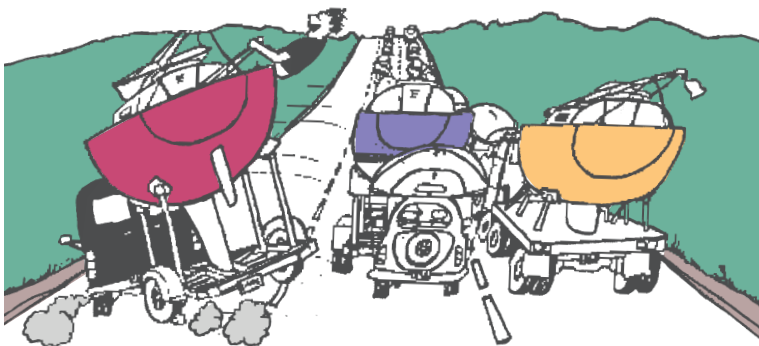
Sail the up-current tack first.

95 If the wind and current stay constant, it does not matter which tack or jibe you sail first. But when you're not sure how they will change, your best chance is staying near the middle of the course where you can play a windshift in either direction. One way to stay near the middle is by sailing the upcurrent tack or jibe first (since the downcurrent tack usually brings you to a layline sooner). This won't get you to the mark faster by itself, but it will keep you in a better position to take advantage of future shifts.

Reaching

Get up into the passing lane early.

98 When you're overtaking a slower boat, the best tactic is usually to pass them to windward. The 'passing lane' is at least several boatlengths to windward of the boat ahead. It's far enough away that you can roll over them and they won't be able (or won't try) to stop you. The critical move is getting into the passing lane early – at least several lengths before you reach the other boat. This way they won't be tempted to sail up in front of you (or by the time they realize what is happening it will be too late to stop you).



Go rhumbline.

99 The shortest distance between two points is a straight line, so when those two points are the marks at the end of a reaching leg, the quickest way to get from one to the other is usually straight down the rhumbline. Sure, there are times when it is better to sail high or low. But usually the fastest way to sail a reach is straight from one mark to the next. If you do this, you should gain on every other boat that strays off the rhumbline.



Establish 'low' right away.

100 When your strategic plan says go low, head that way right after the windward mark. It's essential to get away from the bad air and disturbed water of the windward boats as quickly as possible, so don't hang out in the middle of the reach. Sail a course that diverges from the windward boats until you're far enough away to have clear air and good speed.

SPEED&Smarts

100

(ISSN 1075-5772) is published by Four Winds Inc.
Address: PO Box 435, Easton, CT 06612-0435 USA
Phone: 1-800-356-2200 or 203-445-0734

E-mail: SpeedandSmarts@optonline.net

Web site: www.SpeedandSmarts.com

FB: www.Facebook.com/SpeedandSmarts

Publisher/Editor: David Dellenbaugh Office manager: Joanne DeLuca Art: Brad Dellenbaugh

© 2014 Speed & Smarts All rights reserved. No part of this issue may be shared or reproduced without permission, except subscribers may copy pages for their own use.

Subscriptions: We offer two versions of *Speed & Smarts*:

The **Email version** is available everywhere for \$38 per year (\$66 for 2 years).

The **Paper version** is available only in the U.S. (\$48/86) and Canada (\$53/95).

Speed & Smarts is published every other month. Issues are numbered sequentially, and issue dates are approximate. Almost all of the back issues are still available.

SPEED&Smarts

P.O. Box 435, Easton, CT 06612
SpeedandSmarts@optonline.net

To get back issues or give a gift subscription:

[Speed & Smarts web site](http://www.SpeedandSmarts.com)

Get 'Learn the Racing Rules'

Our two-part DVD set explaining the current racing rules

© 2014 Speed & Smarts

All the material in this (and every other) issue of Speed & Smarts is copyrighted. Reproducing, sharing or giving this material to other people is expressly prohibited.