



## To luff or not to luff?



### QUICK QUIZ

Here's a three-pronged brain teaser to test your luffing know-how:

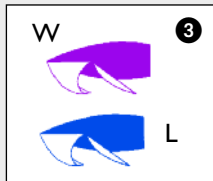
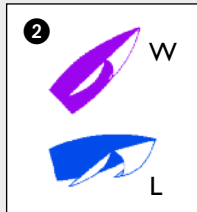
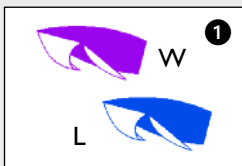
1 Before their start, W and L are reaching below the line, and W is in the position

shown. Is L permitted to luff?

2 In the position shown below, the skipper of W hails 'Mast abeam.'

Is this a proper hail?

3 After they go around the windward mark, W and L are sailing down the first reach.



*Not updated for current rules!*

## Speed fundamentals

# Key on four go-fast ideas

There's nothing quite like good boatspeed to make you *look* smart, *feel* smart and help you get across the finish line ahead of your competition. I don't care how good your strategic plan is, without speed you'll eventually be squeezed out the back of the pack like a slippery watermelon seed. And that's no fun.

When you *do* have speed, it's much easier to follow a game plan and execute your tactics. You can pinch off a boat to windward and gain the option to tack, for example. Or you can hold up out of another boat's bad air long enough to get to the favored side of the course.

Fortunately, the science of boatspeed is not quite as mysterious and technical as it is usually made out to be. Good boatspeed is within the grasp of any sailor, no matter what your level of experience. Best of all,

you don't have to understand theory in order to go fast. You just need some common sense, good observational skills and the ability to learn.

Here are the four key speed principles that I rely on all the time:

1. Speed is a relative concept;
2. Reproducibility is crucial;
3. Survival of the fastest; and
4. Don't reinvent the wheel.

Let's look at how you can use each concept to get yourself going faster.

### 1. Boatspeed is relative

The first important thing for every sailor to accept is that the only meaningful way to measure speed is relative to other boats. Of course, we always try to go as fast as possible in an absolute sense. But when it comes to evaluating your particular speed at any moment in time, you have to consider other boats. ➔



J.H. Peterson photo

You don't have to be a rocket scientist, or even a scientist, to make your boat go fast. In fact, almost all the necessary ingredients of boatspeed can be learned empirically. So don't worry too much about theories. Keep trying different adjustments, and hold on to the ones that make you faster relative to the competition. Think of it as boatspeed evolution, or survival of the fastest.

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## Speed fundamentals

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Therefore, any plan for improving speed must, sooner or later, involve at least one other boat. That's why almost every serious racing campaign uses two boats to leapfrog forward in speed.

### 2. Reproducibility is key

The second fundamental concept of boatspeed is what I call the "principle of reproducibility." This is the building block for almost every speed improvement. Basically, it says you should be able to duplicate (as exactly as possible) your rig tuning and sailtrim from month to month, day to day, and tack to tack. What good is it if you're fast one Sunday but slow as molasses a week later because you've completely forgotten how the boat was set up?

For most boats, a few basic tools can give you nearly complete reproducibility — a tape measure (for rake, jib lead position, etc.); a tension gauge (for shroud tension); and a magic marker, colored tape or number strip (for backstay, outhaul, jib halyard, etc.). Calibrate your key variables so you can reproduce fast tuning and trimming combinations.

When you're "in the groove," note the numbers and record these in a notebook for future reference.

### 3. Survival of the fastest

The third speed concept is easy enough to follow: If you're going fast relative to other boats, leave things the way they are. And make sure you remember where everything is set! If you're going slow, change something. Start by adjusting the mainsheet, jib sheet, or backstay (if you have one). These controls usually have a large effect on boatspeed.

When you start changing things, do it systematically. Alter one variable at a time, if possible, so you're able to identify whether this makes you faster or slower. Hang on to the

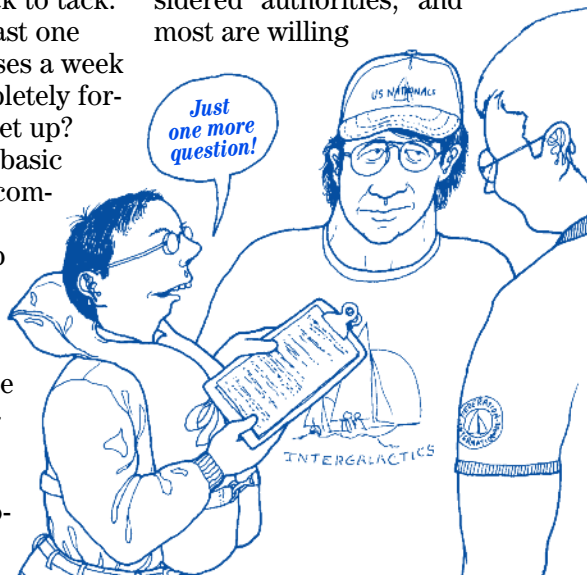
fast ideas, and discard the slow ones. View this as a long-term process of piecing together all your fastest components.

### 4. Don't reinvent the wheel

Fortunately, you don't have to start from scratch in getting up to speed. There's a lot of information already available about how to go fast in almost any boat.

For one-designs, the best source of information is your sailmaker's tuning sheet. Unless you have a very good reason, set up your boat exactly the way your sailmaker suggests.

Another speed resource I recommend is your competition. Sailors, like all people, love to be considered "authorities," and most are willing



**The best way to improve your speed is usually by setting your boat up like the fastest boats in your fleet or class. Then devote most of your practice time to boathandling, steering and other crew skills that are so critical for good boatspeed.**

to share what they know. Make it a habit to spend a little time after every race talking with the top skipper to find out why they went so fast. You'll often learn more by asking a few questions here than by reading all the books in the world.

These four basic principles apply to almost every aspect of speed development in a sailboat. If you follow them consistently, you'll be well on your way to an evolutionary increase in speed. •

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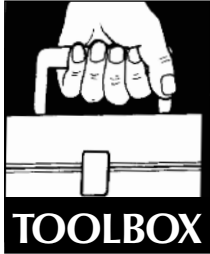
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Don't be misled by

# V-M-G



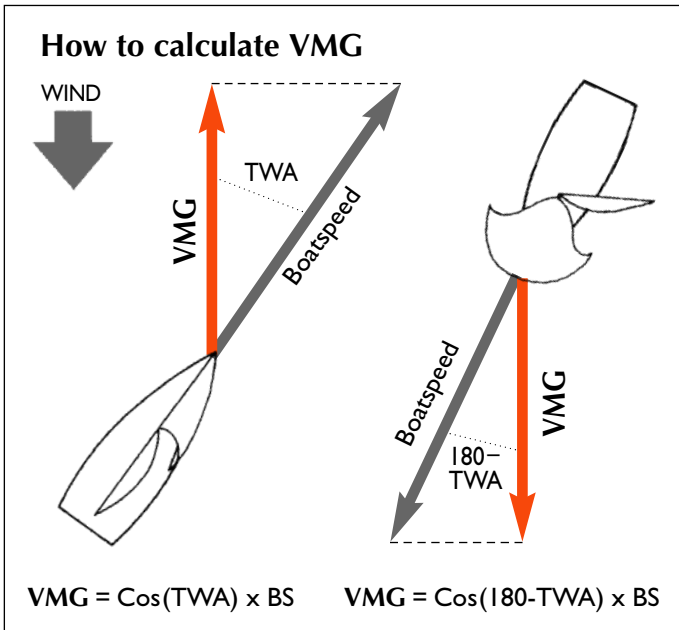
## What is VMG?

Velocity-made-good, or VMG for short, is the component of your boat-speed vector in the wind direction. In other words, it's the speed you make good to windward or leeward.

## Why is VMG important?

When you're sailing on a beat, your object is to go as fast as possible toward the windward mark. The boat that gets to the mark first is the one that travels the fastest upwind; in other words, it's the boat with the highest VMG.

Downwind is a similar story. Here the goal is to sail as fast as possible toward the leeward mark, or away from the wind. Again, the boat that wins will be the one with the best VMG.

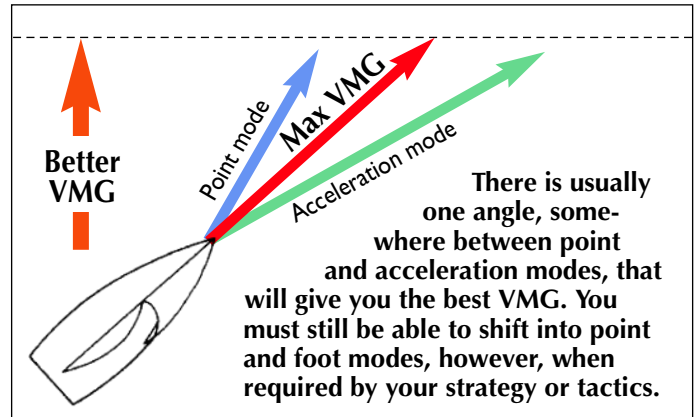


## How do you calculate VMG?

To figure out your VMG mathematically, you need to know both boatspeed (BS) and true wind angle (TWA). Plug these into the formulas in the figure above.

If you sail on a big boat with instruments, there may be a VMG "chip" that you can easily insert into one of your display units. This will give you a continuous readout of your boat's VMG at every moment.

On one-designs, where you don't have such fancy technology, the best way to gauge your boat's upwind or downwind performance is good old "gut feel," based on how well you are doing against other boats.



## The most practical and valuable use of VMG

The VMG concept is most helpful when you are trying to figure out what angle to sail upwind (or downwind). Should you sail high and slow, low and fast, or somewhere in between? The answer (given other factors equal) is that you should sail whichever angle produces the greatest VMG (see diagram above).

That's not always easy to tell. Even in a big boat, with a VMG readout, it's hard to hold a steady angle long enough to get a good VMG average. That's why it helps to collect enough data to construct polar diagrams and find your "target" speeds (more in a future issue). On a small boat, the best way of judging your optimal angle is by watching your VMG performance relative to other boats. This is when the boatspeed calls of your "speed reporter" are important (see page 8).

Of course, there are strategic and tactical factors that affect VMG as well. If you're anticipating a puff, for example, you may shift into point mode to get to it faster, even though your VMG drops temporarily.

## What is misleading about VMG?

Consider this example: You're steering a big boat upwind, and right in front of you is a readout of your VMG. After sailing closehauled for a while, you decide to head up a little. The VMG goes up, so you head up more. The VMG goes up again, and pretty soon you are head to wind, with your highest VMG of the day!

We all know it's not fast to go head to wind on a beat. Though the VMG did increase temporarily, soon afterward you saw a record low for the day as well. The problem is that your TWA can change quickly, but your speed changes only slowly due to inertia. As a result, VMG can vary widely without relation to the overall performance of the boat. Therefore, in almost all situations, consider VMG a long-term concept, not a short-term one. Try to maximize your average, sustainable VMG, and avoid going for a roller-coaster ride.

While we're at it, let's dispel another VMG myth. Have you ever heard someone suggest that in the middle of a tack (especially in a heavy boat with smooth water) you should hold the boat head to wind for a bit to get some extra VMG? They call this a "VMG tack." Don't buy it. If this worked, you'd see everyone shooting head to wind on beats just to improve their VMG. ●

# FISHER ON SPEED

Greg Fisher, a multi-class champion and selfless teacher, shares his secrets on the fundamentals of going fast.



*Greg Fisher is known in many classes for his ability to make a boat go fast. At the same time he is appreciated by countless sailors for his enduring efforts to help them go faster.*



*He has won many national titles and is currently the coordinator of the North Sails One-Design group.*

## **David: How important is speed?**

**Greg:** “I think going fast is critical because without decent speed, it’s difficult to follow your strategic and tactical gameplans. In the pursuit of speed, most sailors put too much emphasis on equipment and not enough emphasis on things like boathandling, steering and teamwork. I think the sailors account for 80% of speed; equipment and tuning contribute only about 20%.”

## **How does speed affect strategy?**

“When I’m slow, it’s tempting to bang the corners and take unnecessary risks looking for that big, easy gain. However, this is when you have to force yourself to be conservative because your speed will never bring you back from a mistake.

When you’re fast it’s much easier because you can pull out of tougher spots. Again, you want to be relatively conservative and let your speed bring you to the front of the fleet. Try to get a decent start, consolidate when you make gains, and let your competitors take the risks. It’s much easier to protect and cover when you’re fast.”

## **If someone has a boatspeed problem, how can they begin to fix it?**

“First, make sure your problem is really the result of poor speed, and

not caused simply by rough crew work, bad preparation or poor steering. While it’s easy to blame below-average performance on speed, you should reflect back on your racing to be sure this is really the problem.

Second, if you conclude that speed is the problem, figure out how and when you are slow. Is it straight-line speed, accelerating out of tacks, pointing, going through chop, light air, etc? Once you’ve identified your weak area(s), don’t try to be a hero and figure out the problem all by yourself. Copy what the faster boats are doing, and ask a lot of questions. This will greatly accelerate your speed curve.”

## **Haven’t you used two-boat testing a lot to improve your speed?**

“Yes, definitely. It has helped me more than anything else in my sailing career. By sailing with a buddy on a practice day, you have time to stop, experiment, adjust and improve. The ability to talk about the changes and improvements really speeds up the process. This is also the best form of steering practice there is. Two-boat testing is by far the most effective way to achieve big speed jumps in a short period of time.

In two-boat testing (just as in a race), the wind and water conditions are changing all the time. This provides a great opportunity to learn about gear-changing because you can experiment with how high to point, how to drive, how to trim your sails, and all the other things that come up. If it doesn’t work, the other boat simply stops, waits for you to catch up, and you try again.”

## **What would you say is your biggest secret to going fast?**

“Feeling when the boat is balanced.

This is not something magical – you just have to notice how the tiller (or wheel) feels. For example, is there too much helm, too little helm and so on? This is something you must feel continuously, so you can keep making the right adjustments.

On most smaller boats, the helm should be nearly neutral. If you have extra weather helm, either you’ve got a puff, a lift, or the boat is out of trim. And you know immediately, before the crew can feel what’s going on, what the boat needs. Similarly, if the helm all of a sudden goes dead or mushy, you know you’ve sailed into a lull or header, the boat’s too flat, or you’re out of trim – and you can react.

When you know you’re going fast, you want to memorize what the helm feels like. Get used to that feeling, and key on it as your most important speed variable. Everything else will fall into place.”

## **What else makes a speed difference?**

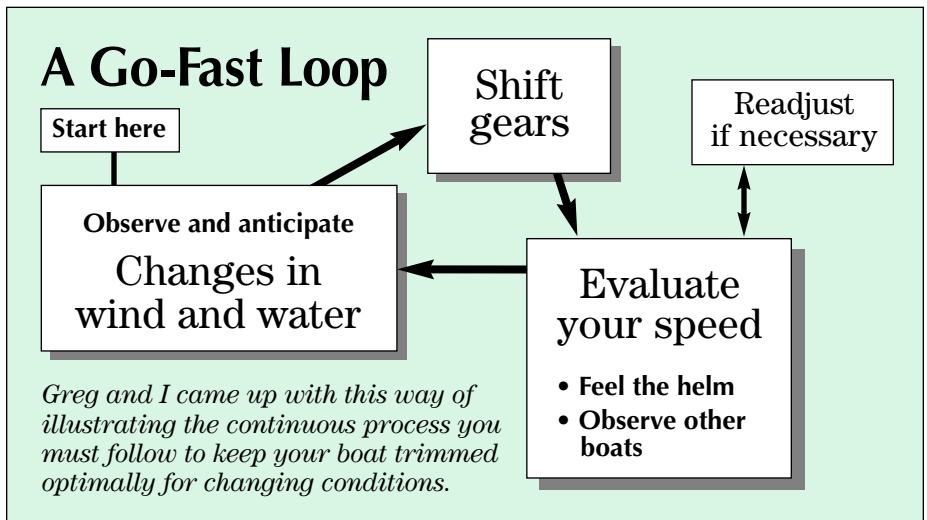
“Constantly shifting gears. By this I mean adjusting the boat and sails to the proper attitude for every change in conditions. Every time you encounter waves, a lull, a flat spot or a puff, there are certain adjustments you should make to keep the boat going fast.

What you’re looking for is what we call the “groove,” or the spot where the helm feels good and you’re going well relative to other boats. Since this groove is always changing (because the wind and water never stay the same), you have to keep shifting gears. If you key on the helm, this feel will tell you what gear you should be in.

It’s a lot like changing gears in a car: You can’t just stick it in fourth gear and go up and down hills. You have to work the car continuously by shifting gears.”

**What percentage of your upwind legs are you sailing “in the groove”?** “It depends a lot on the conditions. In fairly steady 8-12 knot winds with a slight chop, I might be in the groove 70% of the time. But if it’s a shifty inland lake that number might be only 30%, or even less if other boats are disturbing my wind and water. Even the fastest sailors, who seem to have good speed most of the time, are rarely in the groove for a majority of any race, unless the wind conditions are ideal and other boats aren’t in the way.

The goal is to increase the amount of time that you’re in the groove. That comes with practice, especially if you do some two-boat testing. This helps you get tuned in to subtle changes in the feel of the helm, which allows you to feel where the groove, or “sweet spot,” is. Of course, you will also learn to identify when you are not in the groove, and this is when you must tell your crew what changes need to be made. Or, you may just report the symptoms of what you’re feeling (e.g. too much helm), and let your crew come up with the solutions.



**When you talk about feeling the helm, isn’t that a bit reactive? Once the helm goes mushy, for example, aren’t you already late responding?** Basically yes, and that’s why it’s so important for the crew (and the skipper) to be looking at the wind and waves up the course and talking about what they see. This anticipation is the key to changing gears.

Feel in the helm is also very important for a couple of reasons: First, it’s your best clue to knowing whether the boat is in or out of bal-

ance. It teaches you the fastest sail and boat trim for various conditions, which will help you get set up for anticipated changes. Second, even if you anticipate wind changes and shift gears ahead of time, you still need a way to check whether you have made the proper adjustments. That check is your helm.”

**When you are a skipper, what’s the most valuable speed input you get from your crew?**

“I like to have a lot of talking on my boat. What I always want from the crew is information on how we’re moving relative to other boats. If they say we’re lower and slower, for example, I know I’ve got the boat trimmed wrong and I need to make some changes. If we’re going higher and faster, I memorize that feeling in the helm and I think about what changes I might have to make next in order to maintain that feeling.

Constant conversation is real critical. Of course, I want to hear about puffs, waves and other things happening ahead, but I always need someone to report on speed so I can concentrate on the changes needed to keep going as fast as possible.

When I’m crewing, what I want to hear from the skipper is information about the feel of the helm. This is very important because without it I can only guess what the helmsperson is sensing. And, as we have just discussed, I need to know how the helm feels to do the best job of trimming the sails and adjusting my weight to balance the helm.” ●



**“When I feel slow, the first thing I do is ask my crew to look at other boats that are going faster than us and try to figure out how they are set up differently. Then I tune into how the helm feels. There’s no magic involved.”**

# Point higher by going faster



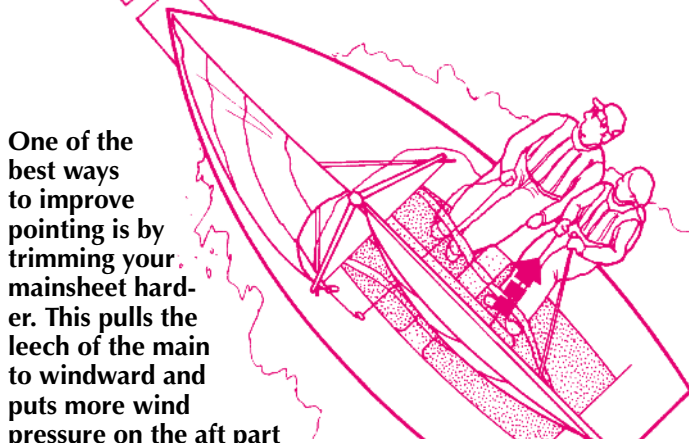
I can't point with the other boats! How many times have you felt this way after a tough race? One thing for sure is that you're not alone. In fact, this is a common complaint from sailors at all levels. The reason is there's almost nothing more frustrating than trying to race around the course against boats that are pointing even one degree higher than you are.

Unfortunately, many sailors try to solve their pointing problems simply by turning their boat so it's heading closer to the wind. But this usually slows you down and makes the problem worse. In simple terms, pointing at first appears to be a matter of where the boat is *aiming*, but it's really more a function of how *fast* the boat is going.

The ability to point high can improve your speed by increasing VMG, and it is also a powerful tactical tool. The times when you might shift into point mode are numerous, including when you are: 1) coming off the starting line; 2) trying to squeeze off a boat on your weather hip; 3) trying to stay out of the bad air of a boat ahead; 4) squeezing to fetch the windward mark; 5) pinching up to miss a bad wave or catch the next puff; or 6) burning off extra speed above your "target." It's clear that pointing ability is one weapon you want to make sure is in your arsenal.

So what's the secret cure for pointing ills? In most cases of "point-itis," I recommend two things.

First, make sure you are going full speed before you even think about shifting into point mode. Second, try trimming your mainsheet a little harder. Let's look at each of these options.



One of the best ways to improve pointing is by trimming your mainsheet harder. This pulls the leech of the main to windward and puts more wind pressure on the aft part of the sail, which increases windward helm and makes the boat want to head up. Of course, you must be careful not to overtrim the sail. After a certain point, more sheet tension will only cause the sail to stall, and you will feel your speed start to die.

## Accelerate first, then point

In many ways, point mode is the antithesis of acceleration mode. You generally want to accelerate when you are slow, and point when you are fast. To accelerate, you bear the boat off a little and ease sails. To point, you head the boat up a bit and trim sails.

However, acceleration comes first. Before you try to point you must be going full speed so your underwater foils are working at maximum efficiency. The key factor is not where the boat is *heading*, but where it is *tracking*. On almost every race course you'll find boats that don't appear to be pointing too high, but watch out if they ever get underneath you! They're living proof that speed converts to height.

I like to break point mode into two different categories: In **short-term mode**, you want maximum height and it's OK to lose speed because you won't have to stay in that mode very long. Typical examples are squeezing around a weather mark, and pinching off a windward boat. In **long-term mode**, you can't afford to lose speed because you'll have to hang on for minutes. Therefore, head up only until you feel the boat just barely begin to lose speed. Examples of this mode are coming off the starting line, and trying to hold up out of bad air long enough to get to the favored side.

## Sheet your mainsail harder

Once you're going fast, the key control for shifting into point mode is your mainsheet. By trimming the sheet, you reduce twist in the main and pull the leech farther to windward (see diagram). This increases weather helm, which makes the boat tend to head up toward the wind. It also bends the mast and reduces headstay sag, which flattens your sails and allows you to sail closer to the wind. Keep trimming the main harder until you feel your speed start to decrease. That's when you must ease the sheet back out a bit and bear off to accelerate.

One mistake some sailors make is heeling the boat too much to leeward in order to make it point higher. This additional heel, they reason, will increase windward helm and make the boat want to point higher. That principle is true, but the goal is to get all your additional helm by sheeting the main. In fact, you may actually have to flatten the boat more than usual to compensate for the extra helm caused by the main.

There are, of course, other things you can do to improve pointing. If the above ideas don't solve your problem, review all your speed-producing variables, starting with the appropriate tuning guides and taking advantage of expert opinions. In general, anything that makes you go faster will also help you point higher. ●

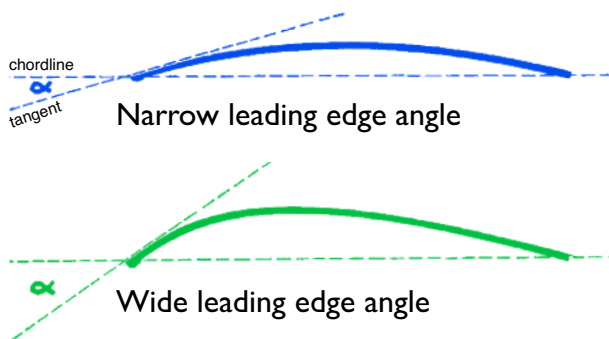




J.H. Peterson photo

The first, and perhaps most important, place where you need to shift into point mode is right after the start. If you can hold above the leeward boat and squeeze up to the windward boat(s), you'll maximize your strategic options. Remember – you may have to hang in point mode for a while here, so don't let your speed get too slow.

### Shape the entry of your headsail



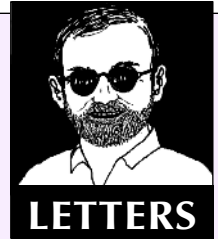
The sail's **leading edge angle** is the number of degrees between the sail's chordline and a tangent to the sail's curvature at the luff.

A **narrow** leading edge angle means the front of your sail is flat, which is good for pointing closer to the wind, but it makes the groove smaller and steering more difficult.

A **wide** leading edge angle means there is a lot of curvature, or shape, in the front of the sail. This is great when you want a forgiving sail shape with a wide groove, but it's usually not too good for pointing.

To point higher, flatten the front of your jib or genoa by tensioning the mainsheet, backstay or runner and by easing the headsail's luff tension until you see wrinkles along the luff. Remember, though, this will reduce the sails' power overall, and you can't point if you aren't going fast. Also, this finer entry will make it tougher to sail the boat fast "in the groove."

## Dear Dave,



**Q** I liked your piece on using a line sight in last month's issue. Unfortunately, where I sail we can almost never get a good sight. Do you have any other suggestions I can try?

I guess you'll have to get lots of practice at the "two trees" drill (see May, page 9). Actually, I do have another helpful idea. When you don't have a line sight, you usually judge your position on the line by eyeballing the ends. But did you know there is a right and a wrong way to do this?

Picture yourself lined up for the start on starboard tack with about 30 seconds to go. You look at the pin, and then turn your eyes toward the committee boat. But wait! When you turned from the pin to the boat, were you facing to windward or leeward? Next time make sure you face *into the wind* when you turn. This will give you a much more accurate read on the line location than turning the other way.

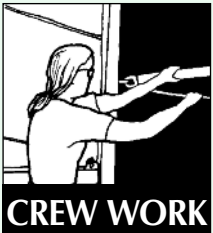
**Q** Last month in "The Fast Lane" you talked about acceleration, but you didn't say too much about twist. Is it good to ease the mainsheet and twist the mainsail for accelerating?

Twist is a measure of how much the aft part of the sail falls away from the centerline of the boat at various heights up the sail. Every sail has a certain amount of twist, which varies by boat and wind condition. In moderate air and flat water, for example, most boats carry minimal twist; in light air and chop they carry maximum twist.

When you want to point, you usually trim the mainsheet fairly hard, which pulls the leech to windward and reduces twist. When you need to accelerate, on the other hand, you ease the sheet and increase twist. There are at least two reasons why easing the mainsheet is good for acceleration. First, twist makes it easier to keep air flow attached to the sail, especially to the upper half. Attached flow is hard to maintain at slow speeds, but essential for acceleration. Second, easing the mainsheet usually straightens the mast and sags the headstay, both of which produce fuller, more draft-forward sails that are good for acceleration.

*Your questions are always welcome. Please address emails to: "Dear Dave" and send to [speedandsmarts@optonline.net](mailto:speedandsmarts@optonline.net)*

*★ Every question published will receive a free one-year extension of a subscription to Speed & Smarts.*



# How to be a speed reporter

In sailboat racing, it's essential to have a good feel for how your boat is moving relative to the competition. This gives the helmsperson and sail trimmers the information they need to get your boat going as fast as possible.

The best way to do this is for one crewmember to take on the job of watching nearby competitors and calling out speed. On a bigger boat, this "speed reporter" should be someone who has no other major responsibilities (such as sail trimming). The speed reporter should sit relatively far aft on the rail so he or she a) can be heard, and b) can see behind the genoa. On a small boat, the reporter can be any crewmember.

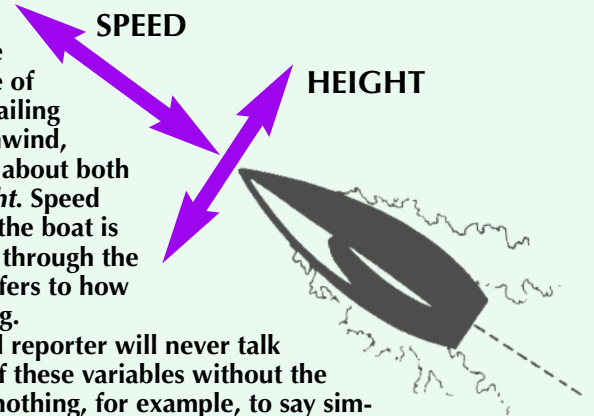
The speed reporter's primary job is to give frequent reports on your relative performance in two areas:

1) **Speed** through the water, and 2) **Height**, or pointing (see diagram at right). To do this, you must carefully observe nearby boats: one clue, for example, is how that boat appears to move relative to the land behind it. Try to describe both variables as precisely as possible (see sample dialogue below), focusing on changes in relative speed and height when they occur.

Speak **loud enough** so you can be heard by the sail trimmer(s), tactician and helmsperson (see photo), since all these people need the information you are giving. And when you have a choice of two or more areas to observe, **focus on the blind spots** where others can't see (a typical blind spot for the skipper is behind his or her back, on your weather quarter).

The times when your reports are particularly important include right after the start when you're fighting for position off the line, on the first beat (or run) when you're trying to find the groove, and anytime you're neck and neck with another boat. During these times,

When you want to describe the performance of any boat that's sailing upwind or downwind, you have to talk about both *Speed* and *Height*. Speed means how fast the boat is moving forward through the water. Height refers to how high it is pointing.



A good speed reporter will never talk about just one of these variables without the other. It means nothing, for example, to say simply "We're faster." Instead say, "We're faster and the same height." This gives your fellow crewmembers enough information to evaluate your performance.

your speed reports may be nearly non-stop, like an announcer at a horse race.

To avoid confusion when you're reporting speed, **always talk about your own boat**. That way, when you say "higher and faster," everyone will know this refers to *your* boat, not any other.

In general, the speed reporter should simply report his or her observations and not try to interpret them. However, there's at least one exception: When you say something like "We're higher and slower" or "Lower and faster," it's not clear whether you are actually gaining or losing on the other boat. That's when you need to introduce the concept of "**net gain**." For example, you might say "We're higher and faster, net gain to us," meaning your VMG is better (see page 3). Or "We're lower and faster, net gain to him," in which case your sail trimmer(s) will probably sheet a little harder, and the skipper will head up slightly. •



The job of speed reporter (crewmember at right side of photo) is just as important as any other for getting your boat up to speed. Here's how a sample running report might sound:

- "A little higher, same speed."
- "Still a bit higher, maybe faster."
- "Same height now, same speed."
- "Slightly lower, but speed is at least the same."
- "A little lower, and now a bit faster."
- "Still lower and faster, net gain to us."
- "Almost the same height, a lot faster."
- "Same height, still faster."
- "Higher and faster."
- "A lot higher, now the same speed."
- "Still higher but a little slower."
- "Higher and slower, net gain to him."
- "Same height, same speed."

JH Peterson photo



Get a handle on

# Velocity Shifts

The best way to explain the concept of velocity shifts is to start with an example. Imagine you are sailing upwind, closehauled on starboard tack. It's a beautiful day, and by some miracle, the wind direction is completely, 100% steady. The wind strength, however, is quite puffy, with significant increases and decreases in velocity.

As you sail along in the average wind strength, the wind you feel is called your apparent wind. It's a vector sum of the true wind plus the boat wind caused by the forward movement of your boat (Figure 1). As long as the true wind and your speed remain constant, the apparent wind you feel will also remain the same in both strength and direction.

Now, all of a sudden, the front of your jib backs. Perplexed, you wonder how you could get a header when the wind is perfectly steady. What happened was you sailed into a lull (Figure 2). The wind direction remained exactly the same, but its speed decreased. When you first hit the lull, your boatspeed was still relatively high, and this made your apparent wind move forward. This is called a **velocity header**, and it will last until your speed drops to match the new wind strength.

Now pretend that you sail into a puff (Figure 3). The wind direction

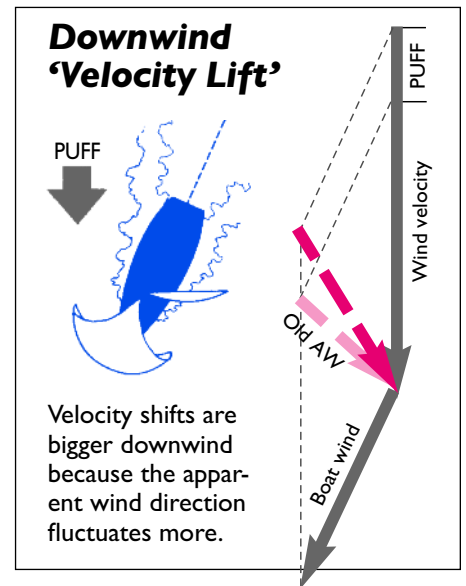
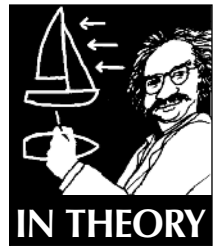
stays exactly the same, but wind speed increases. When the puff first hits, your boatspeed is still relatively low, so your apparent wind will move aft. This is called a **velocity lift**. It will show up just as if it were a shift in wind direction. As your boatspeed increases to match the new wind strength, however, your apparent wind will return roughly to its original direction.

**TIPS** We experience velocity shifts because the wind speed changes more rapidly than boatspeed. When we sail into a lull, for example, we still have all our momentum from the previous puff. Therefore, **the heavier your boat the more pronounced the velocity shifts will be.** In a light boat, like a Laser, which adjusts quickly to new wind speeds, velocity shifts will be much smaller.

■ In the real world, you very seldom get a shift in velocity that does not also bring a shift in direction. I handle this by estimating how much a puff or lull should affect me on velocity alone. Then, if I'm lifted twice as much as I expected, for example, I'll say to my crew "**That was 50% velocity.**" This is very important for accurately tracking trends in the wind direction.

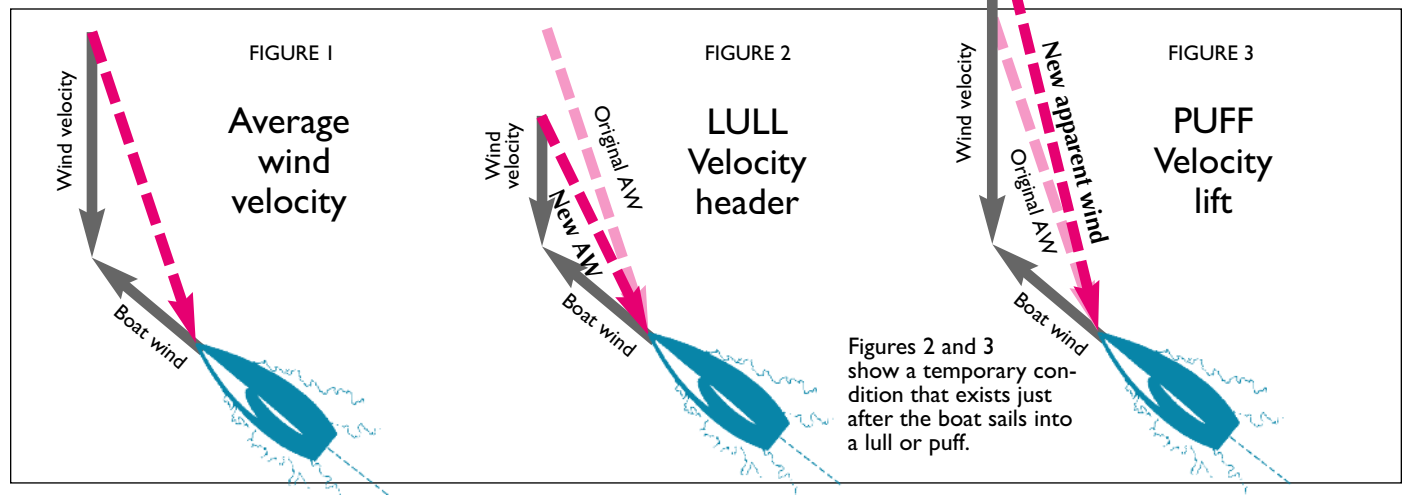
■ When sailing upwind, we usu-

ally tack on the headers to stay on the lifts. However, **don't tack on a velocity header.** First of all, it's not a real header. Second, a lull is the last place you want to tack. How do you know if it's a velocity header or a real header? See if it persists more than a few seconds.



■ Downwind we usually jibe on the lifts to stay on the headed tack. Contrary to upwind, it's **OK to jibe on a velocity lift.** Even though it may not be a real shift in direction, a velocity lift means you are in a puff (see above), and that's usually a good time to jibe.

■ The question of how to shift gears and steer through velocity shifts will be covered in a future issue.



## How to decipher your next regatta's

# Sailing Instructions

Going fast is definitely important for success in sailing. But if you miss your starting signal, sail to the wrong mark or fail to follow the correct protest procedure, it won't matter how fast you are. That's why you must pay careful attention to your sailing instructions (or "SIs" for short).

The SIs are a road map for your regatta. They tell you everything you need to know about the intentions of the race committee and your own obligations. Most importantly, they describe what changes (if any) have been made to the standard rules and procedures that are found in the rulebook.

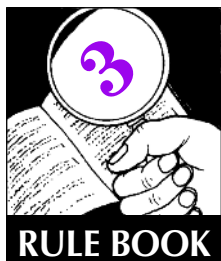
Ideally, you should read over your SIs very thoroughly *before* the day of the first race. Highlight any changes made to the "normal" procedures, plus anything else that strikes you as unusual. If possible, laminate your copy of the SIs in plastic (or slip them into a clear plastic sleeve) to keep them dry.

Prepare questions about anything you don't understand. Try asking a competitor first. If you don't get a definitive answer, bring it up at the skippers' meeting. The jury may not accept verbal questions; if so, they will require that you submit questions in writing. Their answers, and any other changes to the sailing instructions, will be posted on the official bulletin board. That's why you should be sure to find out where this is, and check it every morning before you leave the dock.

Make sure at least one other person in your crew reads the sailing instructions. If necessary, you can do this on the way out to the race course. This is an important double-check because it's easy for

one person to forget something, especially in the heat of battle.

Remember, the sailing instructions rank as rules. You can violate them and be disqualified just as you can be penalized under any other rule. Keep in mind, though, that if you violate a sailing instruction, you cannot exonerate yourself by doing a 720-degree turn or by putting up your I flag (to accept a scoring penalty). Those alternative penalties are only available for infringements of the right-of-way rules in Part 2.



Not updated for current rules!

### CLASSY PLACE YACHT CLUB

#### 1 Rules

All races are governed by the IYRU rules, the prescriptions of the USYRU, the applicable class and fleet rules, and by these sailing instructions.

#### 2 Entries

Yachts sailed by CPYC members or guests are eligible to race subject to club and fleet rules.

#### 3 Notices to Competitors

3.1 Notices to competitors will be posted on the bulletin board located in the CPYC boathouse. The race committee will also attempt to post notices on the class bulletin boards.

3.2 Any change in these sailing instructions will be posted before 1100 hours on the day it will take effect.

#### 4 Signals Made Ashore

4.1 Signals made ashore will be displayed either on the CPYC flagpole or on a race committee boat in the yacht basin.

4.2 Code flag "AP", Answering Penitent with two guns means the racing is postponed. Lowering "AP" accompanied by one gun means either "no abandonment signal" will follow immediately or "a warning signal will be made not less than one hour later."

#### 5 Schedule of Races and Starting Times

5.1 The schedules of races are printed in the CPYC yearbook.

5.2 The warning signal for Cruising Class 1 will be made at 1300 hours.

5.3 The warning signal for the Atlantic Class will be made at 1400 hours.

5.4 When multiple races are scheduled for Stars, Thistles and Lightnings, the warning signal for the first race of the Star Class will be made at 1300 hours.

#### 6 Class Designations

Class	Division
Cruising Classes 1 and 2, Atlantic	I
Stars, Thistles, Lightnings	II
Cruising Class 3, Others	III

#### 7 Racing Area

The racing area will be in the vicinity of the marks as shown on the attached chart.

#### 8 Courses

8.1 Yachts shall sail the course posted for their Division.

8.2 Courses will be displayed on a race committee boat, using letters to designate the marks.

## Rule 3 Sailing Instructions

Not updated for current rules!

The third rule in the IYRR rulebook is all about sailing instructions. Let's take a closer look at each of its four parts:

### 3.1 STATUS

This section says that the sailing instructions rank as rules (see also rule 1.1 and the definition of "Rules"). The SIs may alter certain racing rules, but they must refer specifically to the rule and state the alteration. There are some parts of the rulebook that may not be altered by the SIs. These include the fundamental rules, definitions, right of way rules, appeal procedure and the fact that a red rectangular flag is always acceptable as a protest flag.

### 3.2 CONTENTS

This part contains a list of all the ingredients that must or may be included in the sailing instructions. It exists primarily for race organizers who write SIs, but it does give you a detailed itemization of some things you might want to look for as a sailor.

### 3.3 DISTRIBUTION

If you are entered in a race, you have the right to get a copy of the sailing instructions.

### 3.4 CHANGES

If the race committee wishes to change the sailing instructions, they must do so in writing before a race. Usually they must post the changes on the official notice board by the proper time. However, they are also allowed to hand out notices to all competitors on the water, as long as it is done before the warning signal.

In some instances, the RC may be permitted to give oral instructions on the water, providing the procedure for this is prescribed in the SIs. One thing that's not permitted are oral changes made at the skippers' meeting (unless they are followed up in writing on the official notice board). See IYRU Case 75.

# Dave's Top Ten . . .

## Things to look for in your sailing instructions

OK, you tried to read your sailing instructions the night before your big race, but you fell asleep. Now you're sailing out to the course, and you don't have a lot of time before the first gun. Here are the key things you should look for:

### 1) Penalty system

Which one is being used? In other words, if you infringe a rule, should you do a 720, fly your I flag, or withdraw and head for the harbor?

### 2) Individual recall system

Specifically, what changes or additions has the committee made to rule 7 ("Recalls")? For example, will the committee hail the sail numbers of the boats that are over early? How about bow numbers? Will they make one sound signal for each boat over, or one sound signal no matter how many boats are over?

### 3) General recall procedure

If your class is recalled, will it be a "rolling" start (i.e. you re-start on the next gun, 5 minutes later)? Will the recalled class go to the end of a multi-class sequence? Is there any provision for a black flag or other penalty? After a general recall, is the one-minute rule automatically in effect, or will the RC fly code flag "I" in accordance with rule 51.1c?

### 4) Protest procedure

Has the race committee made any changes or additions to the procedure found in rule 68? For example, are you required to notify the RC of your intent to protest when you cross the finish line? (*This is not required by the rulebook.*) Is the filing time limit different than that stated in rule 68.6? (*It usually is.*)

### 5) Alterations to the rules

Are there any changes to the class or racing rules? If so, the SIs must specifically refer to the rule(s) being changed and state the alteration(s).

### 6) Starting sequence information

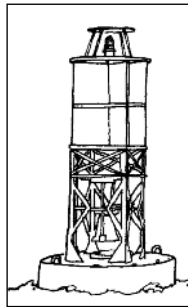
The time of your start is key. Also, what color shape do you start on?

### 7) Course information

What are the possible courses and how will each be signalled? On which side do you leave the marks? Will the RC boat signal the compass heading and/or distance to the first mark? Is the committee allowed to shorten the course? (*They are unless the SIs say they aren't.*) What is the time limit for the race?

### 8) Mark information

What constitutes the starting and finishing lines? If the RC uses a "keep-away" buoy, does this rank as a mark? What is the description of the first and successive marks? Will there be a stake boat? Are there any government marks or other objects that must be re-garded? Is there a prohibition on crossing through the start/finish line before you finish?



If the RC moves a mark, what procedure will they follow, and what will the new mark look like?

### 9) General requirements

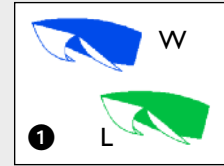
Do you have to check in at the RC boat before the start? What is the advertising category? Must you wear life jackets all the time? Are there any rules about: throwing trash overboard, changing crews during the series, cleaning your boat's bottom, using bow numbers, having support boats, etc.?

### 10) The scoring system

Are you using the "Bonus-points" system, the "Low-point" system, a special class or series system, or something else? If you're using a rulebook method, has the RC made any alterations? A common change is to allow no throw-outs. ●

# QUIZ ANSWERS

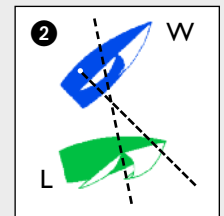
1) **Yes.** L is permitted to luff. Rule 38.1 says that when W has mast abeam, L may not sail above close-hauled. But in this situation, L is



sailing below close-hauled (she's reaching). L may therefore luff up to a close-

hauled course. Of course, when L decides to luff, she may luff only slowly, and she must initially give W room and opportunity to keep clear (see rule 38.2).

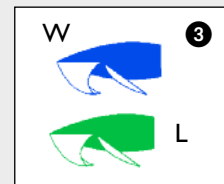
2) **No.** This is not a proper hail. Before 1993, W was never allowed to hail mast abeam when she was sailing higher than L. Now this is



permitted, but only if her helmsperson is forward of L's mast. In the diagram, when W's helmsman

sights abeam he is forward of L's mast. But if W was not sailing a higher angle, his line of sight would be behind L's mast. Therefore, W may not hail mast abeam. Note that if W does make this hail, L must respond. According to rule 40.1, "When she believes the hail is improper, her only remedy is to protest."

3) **You can't tell** if L has the right to luff or not. It looks like L is forward of mast abeam. So if this



were before the start, L would have the right to luff. After the start, however, it depends

on the history of that overlap. If W has been steadily overtaking from clear astern, then L may luff. But if L came from behind and established this overlap to leeward, she may not luff because W has already had mast abeam during this same overlap.

*Not updated for current rules!*

# Ingredients for a functional ditty bag



One thing you can say for sure about ditty bags is they are very personal. Of course, we'd all agree you should minimize weight. And it's obvious you need different supplies on a Laser than on a 40-footer. But each of us has a unique sense of what's essential to bring along. For example, one ditty bag might have just a roll of duct tape. Another might include two vise grips, two knives and a bunch of other tools – just in case. The important thing is to do what's best for your personal psyche. Look through this list of possible items, pick out what you need (and don't need) and build your own functional, but lean, ditty bag.

- Sharp knife with marlinspike
- Duct tape (wrap around your screwdriver to save weight)
- Electrical or cloth tape
- Sail repair tape (for repairing holes in your spinnaker)
- Small scissors (to cut sail repair tape, line, etc.)
- Screw driver(s) (the right kind for your screws)
- Pliers and/or vise grips and/or adjustable wrench
- Wire cutters (essential safety item for big boats)
- Yarn (for telltales on headsail and shrouds)
- Needle, palm and thread (for sail repair on big boats)
- Spare clevis pins, ring pins, cotter pins
- Short pieces of low-stretch line
- Small can of lubricant spray
- First aid supplies (keep in a watertight container)
- Magic marker (for coding)
- 2 pencils w/erasers (for writing wind numbers on deck)
- \_\_\_\_\_  \_\_\_\_\_

**Other ideas:** Use this list before every series to be sure you have everything you need (and nothing more) • Periodically wash all ingredients with fresh water and dry them thoroughly • Weigh each item in your ditty bag and ask yourself if you really need it.

## TWO SPEED LISTS

Here are two more lists that come from the interview on speed with Greg Fisher:

**Greg, in your experience what are the five most common reasons why boats are slow?**

- 1) Not being in the right 'gear'
- 2) Failure to change gears as conditions change
- 3) Main not trimmed properly
- 4) Crew not anticipating and not moving smoothly
- 5) Equipment not up to par."

**Can you list all the sail controls you use during a race, and prioritize these according to which ones you adjust most often?**

"Here's my list for small boats:

- 1) Mainsheet – adjust constantly
- 2) Cunningham – use it to control draft position as you adjust the mainsheet
- 3) Jib sheet – don't play as much as the mainsheet
- 4) Jib luff tension – works like the cunningham
- 5) Backstay/vang – use it to control mast bend and headstay sag as you change gears; on a big boat use the runner too
- 6) Outhaul – we rarely adjust
- 7) Jib lead – hardly ever touch."

*For more of Greg's helpful tips on how to make your boat go faster, see pages 4 and 5.*

**SPEED&Smarts**

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