

# David Dellenbaugh's **SPEED & Smarts**™

The newsletter of how-to tips for racing sailors

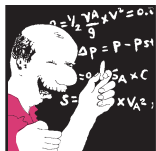
No. 96

March/April 2007



## BRAIN TEASER

### KINETICS – True or False?



Racing rule 42 ('Propulsion') limits the use of kinetics (body movement) while boats are racing. Here's a quick quiz with 8 questions to see how well you know this rule:

- 1) You are allowed to roll your boat as hard as you want as long as you make this action only once and it is not repeated. **T F**
- 2) The actions listed in rule 42.2 (Prohibited actions) are prohibited only if they actually propel your boat in a forward direction. **T F**
- 3) Pulling in and releasing a sail in response to puffs or waves is permitted even if it is repeated. **T F**
- 4) Crewmembers are not permitted to position their bodies in any static position that increases the amount of rolling caused by waves. **T F**
- 5) When the wind is steady and there are no tactical considerations, a boat that tacks more than twice in quick succession breaks rule 42, even if each of the tacks is legal by itself. **T F**
- 6) It is permitted to roll your mast to windward of vertical at the end of a tack. **T F**
- 7) If you pump the mainsheet to surf on a wave but your attempt at surfing is unsuccessful, you have broken rule 42. **T F**
- 8) If a boat is above closehauled and moving slowly, she may scull to turn to a closehauled course, even if this makes the boat gain speed. **T F**

Turn to page 13 for the answers.

### Upwind Tactics

<b>Theme</b>	Take control tactically.....	1
<b>Brain Teaser</b>	Kinetics quiz.....	1
<b>Focus</b>	Anticipate your next move.....	2
<b>Tactics</b>	Keep your air clear.....	4
<b>Tactics</b>	Converging on port tack.....	6
<b>Tactics</b>	Converging on starboard tack.....	8
<b>In Theory</b>	The starboard-tack advantage.....	10
<b>In Theory</b>	Wind shadows.....	11
<b>Tactics</b>	Stay ahead by covering.....	12
<b>Brain Teaser Answers</b>	.....	13
<b>Tactics</b>	Approaching laylines.....	14
<b>Crew Work</b>	Help with tactics.....	16



JH Peterson photo

## Take control of your race!

Sailboat racing would be a lot easier if there weren't so many boats getting in your way all the time. Even when you have fast boatspeed and a sound strategic game plan, you won't get to the windward mark very quickly if you let other boats push you around the race course. That's why you need good upwind tactics.

Tactics are the boat-on-boat moves you make when you are fighting for position with other boats. The purpose of these moves is to give yourself more control over where you sail on the race course. By maintaining control, you will be better able to follow your strategy for using the wind and other strategic factors to sail up the beat as fast as possible.

Of course, in the ideal world you wouldn't want to use many tactics at all. Each time you tack to avoid a starboard tacker or foot off to keep your air clear, you lose ground to every other boat that is sailing fast in the right direction. So the first rule of thumb is to use tactical moves only when they are really necessary. Sometimes sailors become so fixated on beating one particular boat that they lose half the fleet in the process. Don't be one of them.

When you do need to use tactical moves, your success will depend on several factors. The first is how good you are at boathandling. By definition, tactics involve maneuvering in close quarters with other boats. If you and your crew are not very practiced at tacking, ducking, footing and luffing, you will lose a lot of distance (and boats!) on your way to the

## Take control of your race

(Continued from page 1)

windward mark. So if you want to be better at tactics, go back to the basics and work on your team's boathandling skills.

The second factor that's critical for good tactics is knowledge of the racing rules. When you are duking it out with your competition, you must absolutely know your rights and obligations according to the rulebook – otherwise it will be very difficult to control your destiny.

The final piece of the puzzle for improving your tactical abilities is simply having some boat-on-boat moves in your repertoire, and knowing when and how to use them. That's what this issue is all about! On the next 15 pages are more than two dozen tricks you can use anytime you're racing upwind.

There are two possible goals of any tactical maneuver. The first is to improve your own position in the race. Most of the moves described in this issue fall into this category. They help you maintain choices when you are near other boats so it's easier to stick with your strategic gameplan. Almost all sailors should focus on this goal during most of their racing.

There is, however, a second tactical goal – to slow other boats. You might want to keep them from passing you in a race, or to push them back so you can win a series. I generally don't advocate hurting other boats because it can 1) take focus off your own gameplan, and 2) make them do the same to you. However, there are certain times (e.g. at the end of a race or series, in match or team racing) when using your boat and wind shadow to block or slow other boats is a legitimate tactic.

Now get ready to plunge into the chess game you must play any time you race upwind in a fleet!

**Tactics** – *The boat-on-boat moves you make to stay in control of your race and follow your strategic game plan amidst a fleet of boats.*

## FOCUS

# Anticipate your next move

Most sports require a certain amount of thinking ahead. If you're racing a Formula One car, for example, you wouldn't want to come out of a curve and wonder which way the track will turn next. When you're skiing a slalom race, you always need to know where the next few gates are so you can set up properly for each turn.

The same is true with sailing. The more you are able to anticipate the future, the better off you'll be. This is especially helpful when it comes to tactics. Of course, it's hard to predict exactly what other boats will do, but most of the time you can make a good guess. Here are a few things you should do, while racing upwind, to get ready for upcoming tactical situations.

### Maintain a good lookout

It's important to look at your sails and watch the wind that's coming on the water, but you also have to

keep your head out of the boat to see what's happening with your competitors. For example, are there any boats affecting your clear air? Are any boats converging with you? If any of the boats that are nearby suddenly tacked, how would they affect you?

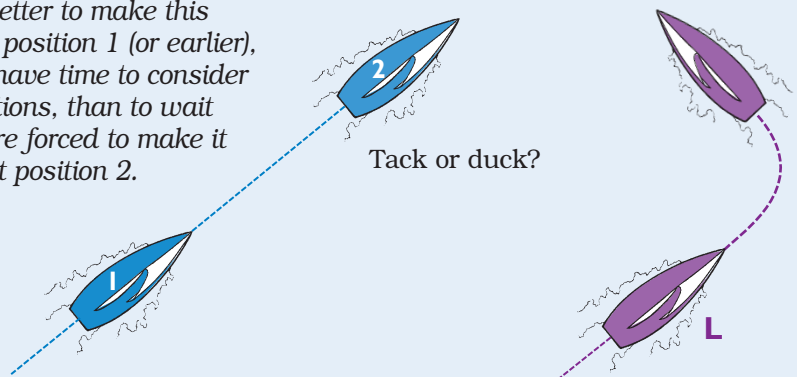
In order to execute good tactical moves, you need as much time for planning as possible. Sometimes you may have only a few seconds to respond to another boat's move, but every second counts. If you aren't keeping a good lookout, other boats will catch you by surprise. Your tactics will be reactive instead of proactive, and you'll have to make decisions on the fly. To avoid this, ask everyone in your crew to keep their heads out of the boat.

### Keep your game plan in mind

The blueprint for every tactical move you make should be your strategy, or game plan, for the beat. Do you want to go left, right or play

## Make your decision before you have to make it

*What will you do if L tacks? It's much better to make this decision at position 1 (or earlier), when you have time to consider all your options, than to wait until you are forced to make it in a rush at position 2.*



When you are racing near other boats, try not to let them disrupt your strategic plan. This is not always so easy to do. For example, let's say you are racing upwind on port tack and a boat close to leeward (L) tacks to starboard. All of a sudden you have a choice – you can either tack to leeward of L or bear off behind her. And you have about two seconds to make this decision.

If you haven't thought about this possibility before it happens, your odds of making the right decision are 50/50 at best. Therefore, you have to think ahead. Keep an eye on the boats around you and try to imagine what they will do next. For each possibility, figure out what you will do to follow your game plan. In the situation above, your response depends on which side of the course you like. If you like the right, bear away immediately so you can keep sailing on port tack.



**One of the most important prerequisites for anticipating your next move is keeping a good lookout. This is a job that should be shared by as many of your crew as possible. If you have a genoa, it's hard for anyone except the genoa trimmer to see what happens behind the sail, so he or she must watch your leeward ('blind') side and give the rest of the crew advance warning when other boats are approaching (either on starboard tack or on port). With a jib, it's easier for the helmsperson, tactician and mainsheet trimmer to help maintain a lookout.**

JH Peterson photo

the shifts up the middle? This is the question you must keep answering continuously as you sail up the leg.

Remember that strategy comes first and tactics follow from there. Your object while racing is to pursue your game plan as closely as possible. Think ahead so you can avoid spontaneous decisions and reactions that are made in response to other boats' actions without regard for the big picture.

Keep reminding yourself (and everyone on your boat) of your game plan during the beat. Then, unless you change your plan, make sure every tactical decision is consistent with that strategy.

### **Develop contingency plans**

In sailboat racing, things are always changing. That's part of the intrigue and challenge. The most successful sailors are those who consistently take advantage of these changes.

It would be nice if we could plan ahead for every tactical move we make on the race course: "OK, we're going to lee-bow the green boat in two minutes, pinch her off and then tack in front of the boats coming from the left." Unfortunately (or perhaps fortunately), this is impossible, since you can't predict

how other boats will behave.

What you can do, however, is anticipate a certain number of possibilities that might happen in the near future. Then make a plan for each contingency. For example, let's say you are sailing closehauled with another boat close to leeward. If that boat luffs, will you sit head to wind with them or keep turning into a tack?

Anticipation gives you time to consider possible choices before you have to make them. If you will tack when the other boat luffs, it's cer-

tainly better to make this tactical decision beforehand, rather than wait to decide when it happens.

At any point in a race you may have several tactical contingencies in mind. For example: "If the boat to leeward tacks, we'll duck behind them." "If the boat that's crossing us tacks on our wind, we'll foot off for clear air below her." As you formulate these contingency plans, base them on your strategy. Always ask yourself if a particular action will help you follow your game plan.

### **Communicate with your team**

Anticipation is possible only if your entire crew works as a team. It's not so helpful if the helmsperson knows the plan but everyone else is in the dark. Good tactics require the best possible boathandling, so make sure that everyone onboard is included in the information loop.

Of course, communication must go both ways. Everyone in the crew must speak up about the actions of nearby boats. And the skipper or tactician must let everyone else know what they are thinking. A simple, "If that boat tacks, we'll tack," is usually sufficient.

When I'm racing, I always ask "what if" questions: "What if we can't cross that starboard tacker?"

### **Left or Right?**

When racing upwind, you should always ask yourself which side of the course you like better. In simple terms, would you rather go toward the left or the right? The answer to this question usually determines your tactics when you converge with other boats on a beat. The key is to make sure your strategic plan is always your top priority – then let your tactics follow from there.





# Avoid bad air from other boats

When it comes to other boats, your biggest tactical problem is usually the wind shadows they create. While it's true that you sometimes have to change your course to avoid hitting your competitors or to give them right of way, these problems are generally not as significant as the widespread effects of bad air.

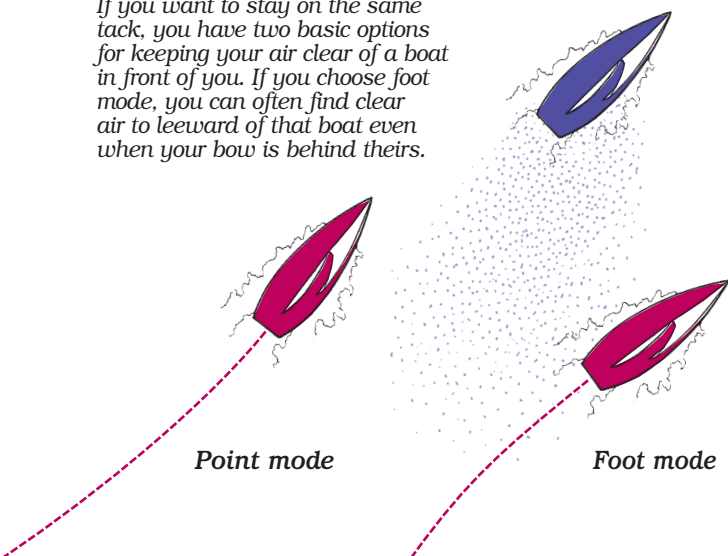
In a big fleet it's not uncommon to sail in disturbed air for at least part of each upwind leg, especially the first one where boats are usually bunched quite close together. But whenever you are affected by another boat's wind shadow, you can be sure that you are going slower than, and losing ground to, many other boats in the fleet.

The existence of wind shadows on a beat is one obvious reason why the leaders of a fleet keep getting farther ahead and the tail enders get farther behind. So one of your main tactical challenges on any beat is figuring out how to keep your air clear as long as possible. Here are some ideas on how to do this:

- **Know the location of bad air.** If you want to avoid wind shadows, you must first know where they are. Remember that dirty air extends to leeward of a

## A. When somebody tacks on your wind

*If you want to stay on the same tack, you have two basic options for keeping your air clear of a boat in front of you. If you choose foot mode, you can often find clear air to leeward of that boat even when your bow is behind theirs.*



**Pinch up above bad air**  
By shifting into 'point mode,' you can often keep your air clear to windward of a boat that tacks in front of you. You won't be able to maintain this height for long, however, so choose this option only when you have a short way to go on this tack (e.g. you're almost to the layline).

**Foot off below bad air**  
By shifting into 'foot mode,' you can get a lane of clear air to leeward of a boat that tacks to windward of you. However, you often have to give up a lot of height in the process, so don't pursue this option unless you plan to stay on the same tack long enough to gain back what you lose.

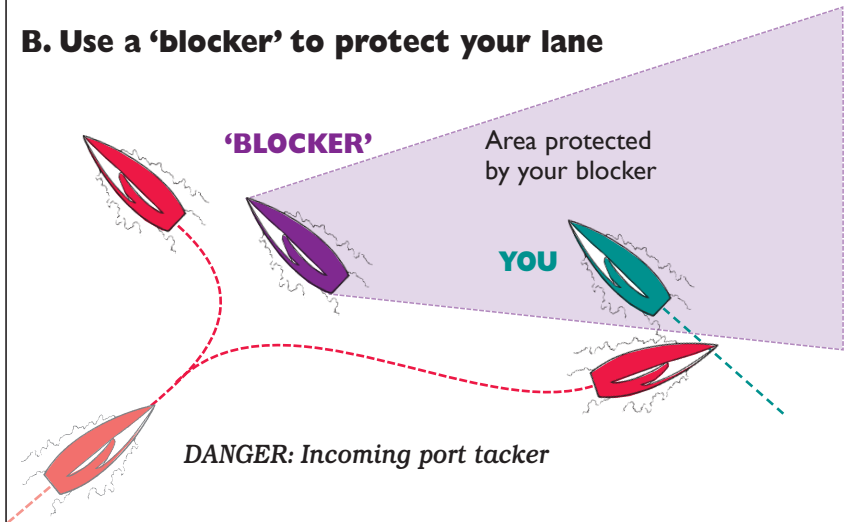
boat in the direction opposite to her apparent wind. (See page 11 for much more on understanding wind shadows in different conditions.)

- **How bad is bad air?** Your tactics should take into account the relative importance of avoiding bad air. For example, in light wind it is usually very slow to sit in another boat's wind shadow. When someone tacks on your breeze, you must almost always do something to clear your air, even if this means putting your strategic plan on hold for a minute. But in heavy air, bad air is much less harmful, so you might decide to keep sailing in a boat's dirty air.

- **How valuable is clear air?** Your tactical plan should also reflect the ease or difficulty of finding clear air. When you're racing in a large fleet, it can be very difficult to avoid other boats' dirty air, especially on the first beat. Therefore, it might be worth doing almost anything to find your own lane of clear air – even sailing toward the unfavored side of the course!

In a small fleet, however, clear air is easy to find. So make sure that you are in clear air almost all the time, and don't be willing to give up very much (e.g. sail in the wrong direction) in order to find clear air.

## B. Use a 'blocker' to protect your lane



### Set up above another starboard tacker

On starboard tack, one of the biggest threats to your lane of clear air is a port tacker that can't cross you. If they tack on your lee bow, their bad air will force you to tack and look for a new lane of clear air. Prevent this by setting up several boatlengths to windward of, and roughly on the same ladder rung as, another starboard tacker (see diagram and photo). This boat is now your 'blocker' and will deflect incoming port tackers away from your lee bow. Boats on port tack that would have been in a position to lee-bow you will now have only two other choices – either lee-bow your blocker, or bear off behind your blocker and duck you as well.

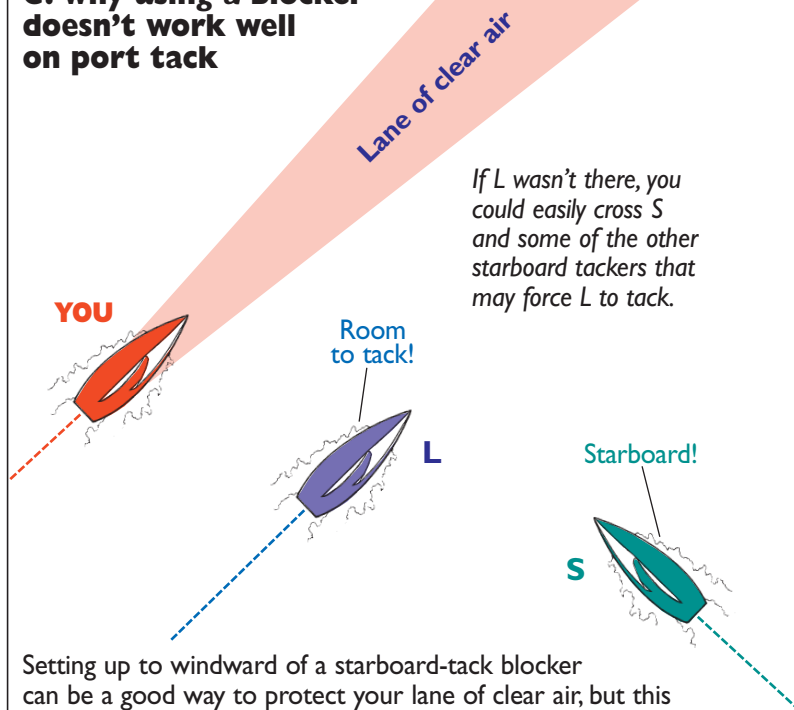
• **Steer clear of your competitors.** When you're trying to sail fast with clear air, it's almost always better to keep away from other boats if possible. Every boat leaves behind an area of disturbed wind and water that will make you go slower. It's not always easy to avoid this, but here are some things to try:

- Look to windward and ahead for “lanes” or “zones” of clear air. Try to anticipate how you can position yourself in these areas of fewer boats where you will have a better chance of avoiding bad air.
- Sometimes you must be willing to compromise a bit on your strategic plan in order to keep sailing fast.
- Don't make a habit of tacking on other boats, and they will tend to leave you alone as well.
- Avoid putting yourself in positions (e.g. on the layline) where boats ahead of you are likely to tack.
- Wave a port tacker across (see pages 8-9). When you're in a good lane on starboard tack, it's better to duck a port tacker than to have her lee-bow you.

• **Use other boats to help you.** There are a few times when the presence of other boats can actually help you maintain clear air.

- When you're on starboard tack, use a 'blocker' on your leeward side to keep port tackers from tacking on your lee bow (see Diagram B).
- When you're in a good lane on port tack and you're almost crossing a starboard tacker, ask them if you can cross (see page 6-7). This is often a better way to keep clear air than tacking or making a big duck.
- Put yourself in a 'safe leeward' position on other boats. You'll get a lift and more pressure as the wind bends around the front of their sailplan (see page 11).

### C. Why using a blocker doesn't work well on port tack



Setting up to windward of a starboard-tack blocker can be a good way to protect your lane of clear air, but this doesn't work so well on port tack; in fact, it can easily backfire. The problem with your position in the diagram above is that if L decides to tack you're in trouble (because you will also have to tack to keep clear of her, and you'll lose your lane of clear air). A very common reason why L might tack is the presence of a converging starboard tacker. Even if L is too close to complete a tack without fouling you, she can still hail for room to tack when she approaches this obstruction. As a result, you can easily find yourself in a position where you are able to cross S, but because of L's position to leeward you must tack and give up your lane of clear air.



One of the best ways to protect your lane on starboard tack is by using another starboard tacker as a 'blocker'. You have to be far enough away from the leeward boat so she will not be hurting you, but close enough that she will deflect any incoming port-tackers who might lee-bow you.



# Converging on port tack

By far the most common way that two boats interact on a beat is when they come together on opposite tacks. This happens many times during a race, and the tactics you choose to employ in each case can make a huge difference in your race results.

On these two pages, we will discuss tactical options for the port tacker. On the next two pages we'll talk about the starboard tacker. In both cases, the obvious first step is keeping a good lookout so you know when another boat is coming.

The next step, and probably the most important when boats converge, is to mentally review your strategic game plan. In simple terms, do you like the right side, or the left? This will have a huge impact on your tactical decision and is therefore critical to know before you engage the other boat.

When you meet another boat on the race course, you have several tactical objectives:

1) To come out of that situation so you are headed in the correct direction strategically. This is the most important goal;

2) To lose as little time as possible while maneuvering around the other boat. In other words, don't lose sight of the big picture; and

3) To force the other boat to go in the unfavored direction. This is a secondary goal unless you are in a situation (e.g a match race or a fight to win the series) where you really need to beat that competitor.

As you converge with a starboard tacker (S), keep the following things in mind:

- S has the right of way, so be sure to keep clear and avoid fouling her. There are, however, some limits on S's ability to change course near

you (see rule 16), and these can work in your favor. For example, if you bear off to duck S, she cannot turn into a tack if her stern swings and causes you to change your course immediately to avoid her.

- While you are converging with another boat, it's usually a good idea to bear off slightly and build a little extra speed. By coming into the situation faster than normal, you have more tactical options and better maneuverability relative to your competitor.

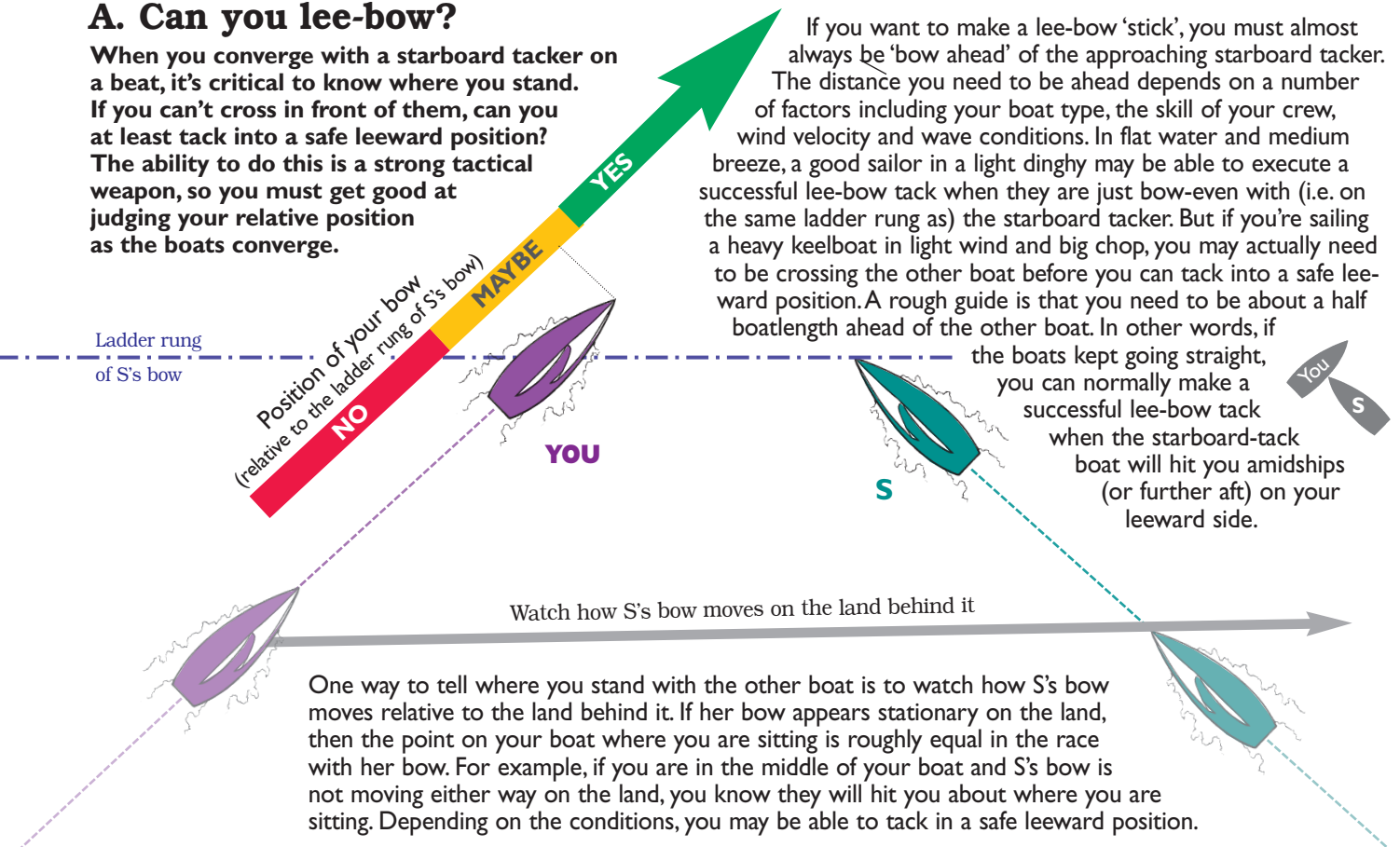
- One big question for the port tacker is whether or not she is far enough advanced in the race that she can tack into a safe leeward position on the starboard tacker (see below). No matter which side of the course you like, the answer to this question will make a critical difference in your tactics, so learn how to judge this accurately.

## A. Can you lee-bow?

When you converge with a starboard tacker on a beat, it's critical to know where you stand. If you can't cross in front of them, can you at least tack into a safe leeward position? The ability to do this is a strong tactical weapon, so you must get good at judging your relative position as the boats converge.

If you want to make a lee-bow 'stick', you must almost always be 'bow ahead' of the approaching starboard tacker. The distance you need to be ahead depends on a number of factors including your boat type, the skill of your crew, wind velocity and wave conditions. In flat water and medium breeze, a good sailor in a light dinghy may be able to execute a successful lee-bow tack when they are just bow-even with (i.e. on the same ladder rung as) the starboard tacker. But if you're sailing a heavy keelboat in light wind and big chop, you may actually need to be crossing the other boat before you can tack into a safe leeward position. A rough guide is that you need to be about a half boatlength ahead of the other boat. In other words, if

the boats kept going straight, you can normally make a successful lee-bow tack when the starboard-tack boat will hit you amidships (or further aft) on your leeward side.



One way to tell where you stand with the other boat is to watch how S's bow moves relative to the land behind it. If her bow appears stationary on the land, then the point on your boat where you are sitting is roughly equal in the race with her bow. For example, if you are in the middle of your boat and S's bow is not moving either way on the land, you know they will hit you about where you are sitting. Depending on the conditions, you may be able to tack in a safe leeward position.

**Protecting the left side.** When your gameplan says go left, it's easy being the port tacker because you are already on the left side of the other boat. You have two options:

- Tack well before you meet up with the other boat. This makes sense because if you like the left you shouldn't keep sailing on port tack – just get onto starboard as soon as you can. Make sure you tack at least 4 or 5 boatlengths to leeward of S; if you go any closer she may end up pinning you on starboard tack.

- Tack in a safe leeward position on S (assuming you are far enough advanced to do this). This is a good way for you to head the right way and force your closest competitor to go the wrong way, plus you avoid the chance that S may pin you.

**When you like the right.** If your strategy says to keep going on port tack, this is more complicated because you must switch sides with the approaching starboard tacker (and they have the right of way). There are three ways to do this:

- **Cross ahead of S.** This is obviously the preferred way of getting to the right, but you must be more than a boatlength ahead of S in order to do it. If it looks close, you can always ask (loudly) if they will let you cross. Yell out something like, "Tack or cross?" Often they will let you go across so you don't lee-bow them.

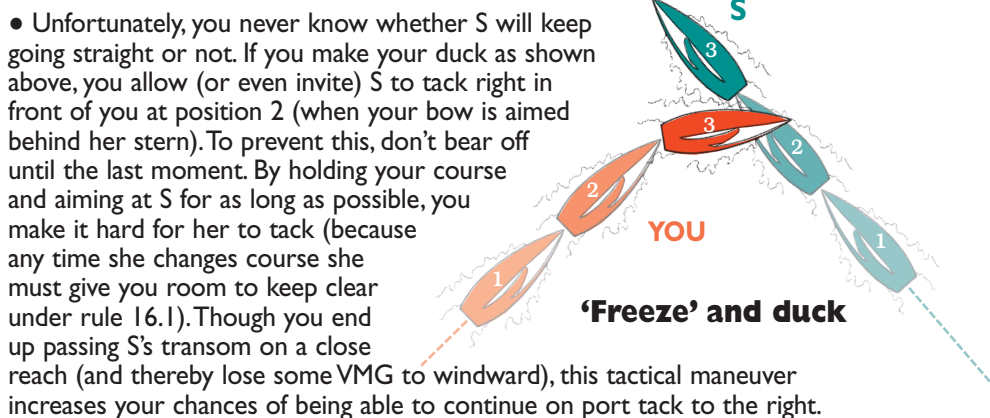
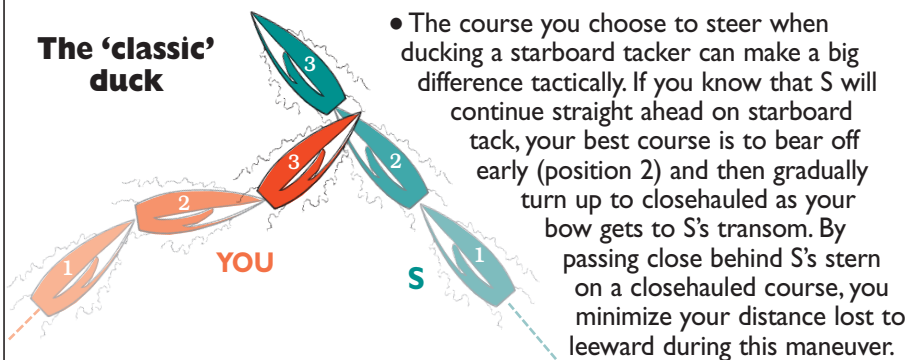
- **Duck behind S.** This is a safe way of getting to the right, though many sailors are reluctant to give up distance by bearing off. However, if you like the right a lot, going there will gain more than you lose ducking.

The only problem with this tactic occurs when S tacks right in front of you. To avoid this, try yelling "Hold your course." This is a non-binding hail, but it lets them know that they should be careful about changing their course. Another option is to do the 'freeze and duck' (see right).

- **Tack on S's lee bow.** This may seem like a strange way to go right, but if you can quickly pinch off S you'll be able to tack again. This works only if the cost of two tacks is less than the two boatlengths or so you would have lost by ducking. •

## B. When you want to keep going right

If you're on port tack and you like the right side of the course, don't tack to avoid a starboard tacker. Instead, plan ahead so you can duck them and continue on port tack.



The classic technique for ducking a starboard tacker (S) is to bear off early so you can return to a closehauled course by the time you cross behind S's transom. However, if you aim behind S too early it will be easy for her to tack in front of you. Instead, hold your boat on a converging course longer than usual; don't aim your bow behind the leeward corner of S's transom until it's too late for her to tack (see diagram above).



# Converging on starboard tack

On the last two pages we talked about the tactical moves available to a boat that is converging on port tack on a beat. There is a similar set of tactics for the boat on starboard tack (S). Since S has the right of way, she usually has more influence over what happens when the boats come together. However, simply having the right of way is not necessarily enough to ensure that you can sail in the direction you want after the boats engage. You still need some good moves.

Several things about starboard tack are the same as when you're on port. First and foremost, you must know your strategic plan before you reach the other boat (so you can base your tactics on this). Second, it's critical to keep a good lookout for boats on the opposite tack. Some sailors think this is not so important when you have the right of way but, tactically, it's not good to be surprised by a boat on either tack. Finally, you want to meet the other boat with a little extra speed so you have better maneuverability.

It's good to have the right of way because the port tacker (P) must keep clear of you, but this also means that your course changes are restricted by rule 16 (Changing Course). If P is ducking you, for example, you must make sure that when you alter your course this does not force P to change her course immediately to keep clear. Either change your course far enough from P that she does not have to react immediately, or change it when P is not pointing at you (e.g. when she has borne off so her bow is aiming behind you).

Since converging on starboard tack does give you at least a bit more influence over most situations, when you are on the right side of a competitor you have the 'starboard-tack advantage.' (See page 10 for more about this 'power of the right.')

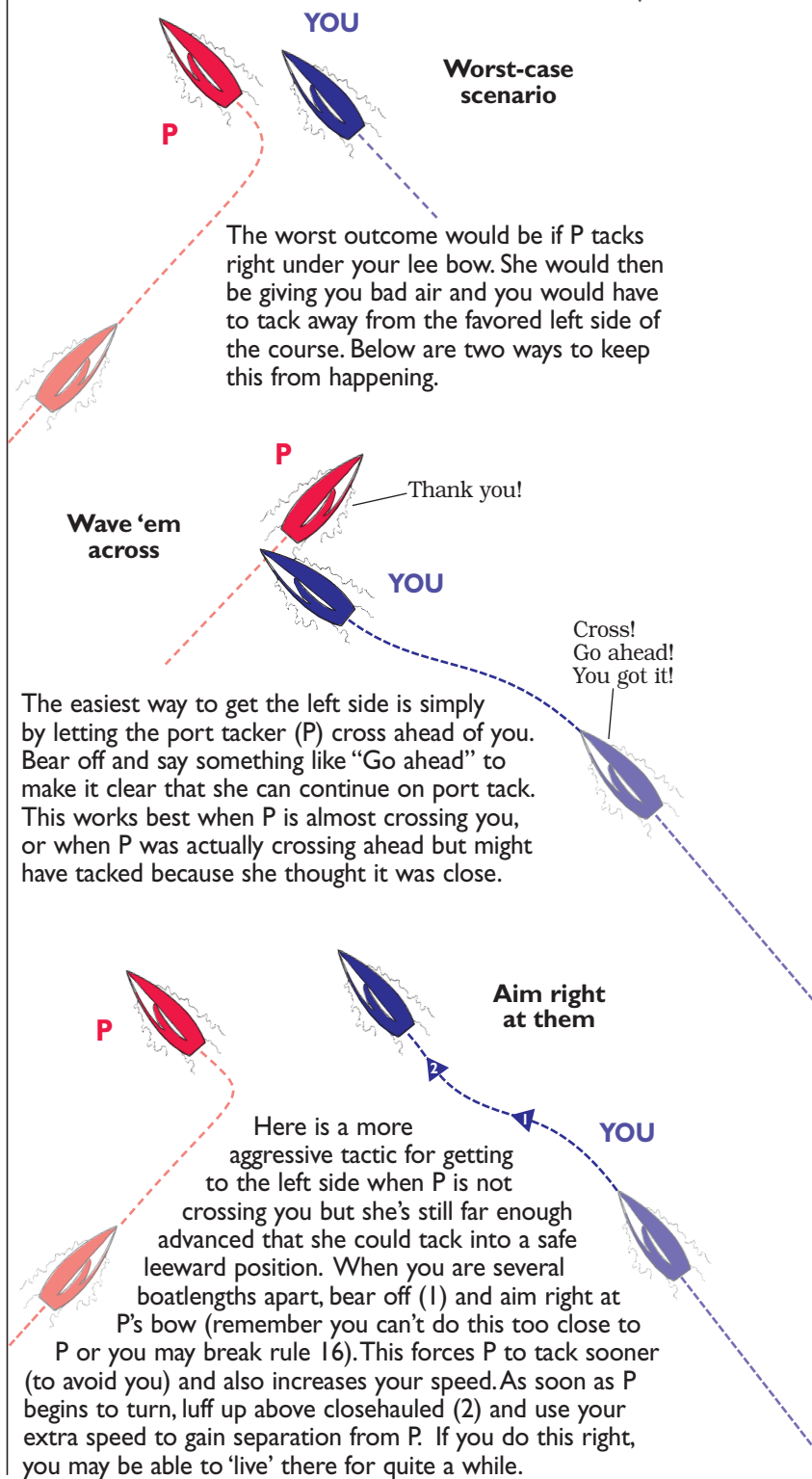
**Favoring the right side of the course.** It should be easy to protect the right because you are already on that side of the other boat. However, this is not always the case because the right-of-way boat has limitations on her ability to change course near the port tacker. Here are your three basic options:

- **Tack before you meet the other boat.** This makes sense because if you like the right you should probably go there as soon as you can. This tactic avoids the risks associated with lee-bow tacks and allows you to maintain the starboard-tack advantage until a later crossing. Just make sure you tack far enough to leeward of P that you can tack again at some point without tacking too close to her.

- **Tack in a safe leeward position.** You want to end up close on P's lee bow, but there are a few risks when doing it from this side. If you tack too soon, P will be able to head up and gain enough separation to windward that she may be able to 'live' there for quite a

## A. When you want to keep going left

You're sailing upwind on starboard tack, converging with a boat on port tack. If you want to continue on starboard tack toward the left side of the course, what tactical options do you have?







Even though you have the right of way on starboard tack, you still need to keep a good lookout for converging port tackers. That's because if one boat tacks on your lee bow it could disrupt your entire gameplan. Prevent this by keeping a good lookout to leeward (on a big boat, your jib trimmer is usually in the best place to do this).

If you want to keep going left, bear off and make it clear that you will let the other boat cross you. If you like the right, try to force the other boat to tack toward the unfavored side; then tack yourself so you're headed the right way. If the other boat is able to cross you, tack earlier so you get to the favored side sooner, and maintain your starboard-tack advantage.

JH Peterson photo

while (pinning you on port tack in the process). If you tack too late, you may a) foul P if she is ducking and has to change course to avoid you; or b) allow P to get a leeward overlap and either luff you or sail through you and pinch you off.

– **Force P to tack to starboard.** If P is almost crossing you and doesn't bear off to duck behind, make her tack on your lee bow and then tack yourself so you are headed right without P. Even if P can just cross ahead, you may be able to pinch up and prevent her from crossing. You're allowed to do this as long as, when you change course, you give her room to keep clear.

**When you want to go left.** When your gameplan says to cross sides with the other boat, it's easier being on starboard tack than port because you have the right of way. However, this will not prevent P from tacking on your lee bow, which is the worst thing that could happen when you want to continue sailing on starboard tack. Therefore, your main priority is to avoid having P tack just to leeward and ahead of you. Here are a few ideas:

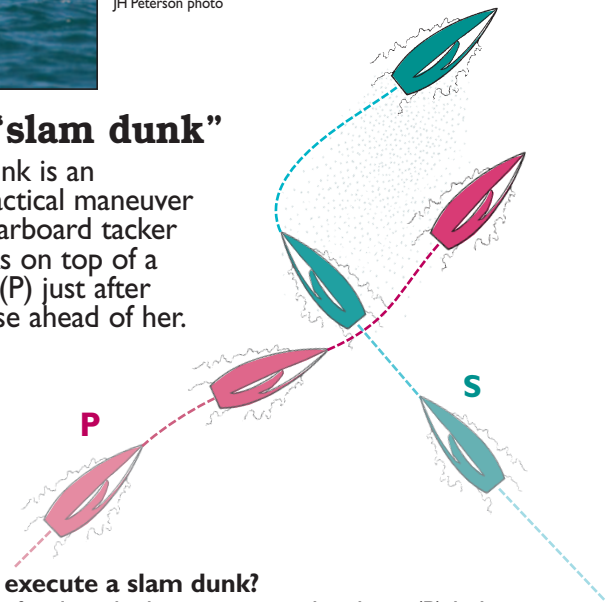
– **Use a 'blocker' on starboard tack** that is ahead and to leeward of you. As I explained on page 4, this blocker helps you maintain clear air, but it also allows you to keep sailing on starboard tack toward the left side of the course without interference from incoming port tackers.

– **Wave P across.** If you really want to keep going left, be willing and ready to bear off behind P. Yell to P as early, clearly and loudly as possible that you will let them cross ahead (*see page 8*).

– **Force P to tack early.** If you maintain a steady course on starboard tack, P will be able to snuggle up under your lee bow and easily force you to tack. To prevent this, bear off early and make P tack sooner than she wants (*see page 8*).

## B. The "slam dunk"

The slam dunk is an aggressive tactical maneuver used by a starboard tacker (S) that tacks on top of a port tacker (P) just after crossing close ahead of her.



### How do you execute a slam dunk?

The purpose of a slam dunk is to pin another boat (P) below you so they are stuck in your bad air and can't tack. To do this, cross ahead of the other boat and begin a normal tack (from starboard to port) just before their bow gets to your centerline (2). Ideally you want to end up at least one boatlength to windward of the other boat with your bow ahead of theirs (3).

### When would you use a slam dunk?

The slam dunk is a good tactic when you need to control one boat that is close behind you for a short time. A good example is when you're approaching an upwind finish line on starboard tack, but you're just below the layline. If a port tacker ducks you, she will have the right of way when you converge again. If you tack on her and leave her the option to tack away, she may beat you to the finish line. Instead, initiate a slam dunk so you lock her in behind you until you're ready to tack for the finish.

### Are there any risks in doing a slam dunk?

Yes. The first problem is that you could break a rule. Don't begin turning into your tack until P is aiming behind you, and when you come out of the tack remember you are the windward boat and must keep clear, even if P luffs. The second problem is that if you have a slow or bad tack P could pull ahead of you and pinch you off. To prevent this, don't try a slam dunk when it's hard to accelerate out of a tack (e.g. light air, choppy seas, heavy boat). And don't try a slam dunk if you need to stay on port tack very long.

# SPEED & Smarts

## BACK ISSUES!

Almost all of the back issues of *Speed & Smarts* are still available. To see a list of topics and prices or to place an order:

[SpeedandSmarts.com/Order/BackIssues](http://SpeedandSmarts.com/Order/BackIssues)

David DelBough's  
**SPEED & Smarts**  
The newsletter of how-to tips for racing sailors  
March/April 2011

**BRASS TACKLE**  
**Can We do this!**  
Two boats overlapped on port tack... Can they cross the windward mark? Can they cross the leeward mark? Can they cross the windward mark? Can they cross the leeward mark?

**Attack your speed problem.**  
No matter how fast you sail, you can always go faster. The key is to know what your speed problem is and how to fix it. This is not a simple task, but it is one that can be done. The key is to know what your speed problem is and how to fix it.

**ISSUE #110**  
**A Case of the Slow**  
THERE'S nothing a speed problem...  
1. TACKLE: An essential tool...  
2. THEORY: The right way...  
3. STRATEGY: The right way...  
4. TACKLE: The right way...  
5. THEORY: The right way...  
6. STRATEGY: The right way...  
7. TACKLE: The right way...  
8. THEORY: The right way...  
9. STRATEGY: The right way...  
10. TACKLE: The right way...

Speed & Smarts #110

David DelBough's  
**SPEED & Smarts**  
The newsletter of how-to tips for racing sailors  
No. 97 May/June 2007

**BRASS TACKLE**  
**Put "new" in the back!**  
On the line, the boat that is...  
1. TACKLE: An essential tool...  
2. THEORY: The right way...  
3. STRATEGY: The right way...  
4. TACKLE: The right way...  
5. THEORY: The right way...  
6. STRATEGY: The right way...  
7. TACKLE: The right way...  
8. THEORY: The right way...  
9. STRATEGY: The right way...  
10. TACKLE: The right way...

**Go the 'right' way!**  
"The right way" is the best way...  
1. TACKLE: An essential tool...  
2. THEORY: The right way...  
3. STRATEGY: The right way...  
4. TACKLE: The right way...  
5. THEORY: The right way...  
6. STRATEGY: The right way...  
7. TACKLE: The right way...  
8. THEORY: The right way...  
9. STRATEGY: The right way...  
10. TACKLE: The right way...

Speed & Smarts #97

David DelBough's  
**SPEED & Smarts**  
The newsletter of how-to tips for racing sailors  
No. 95 March 2004

**Finish with a bang!**  
When you get the finish line...  
1. TACKLE: An essential tool...  
2. THEORY: The right way...  
3. STRATEGY: The right way...  
4. TACKLE: The right way...  
5. THEORY: The right way...  
6. STRATEGY: The right way...  
7. TACKLE: The right way...  
8. THEORY: The right way...  
9. STRATEGY: The right way...  
10. TACKLE: The right way...

**BRASS TACKLE**  
**Which is favored?**  
The boat that is...  
1. TACKLE: An essential tool...  
2. THEORY: The right way...  
3. STRATEGY: The right way...  
4. TACKLE: The right way...  
5. THEORY: The right way...  
6. STRATEGY: The right way...  
7. TACKLE: The right way...  
8. THEORY: The right way...  
9. STRATEGY: The right way...  
10. TACKLE: The right way...

**Fast Finishes**  
THERE'S nothing a speed problem...  
1. TACKLE: An essential tool...  
2. THEORY: The right way...  
3. STRATEGY: The right way...  
4. TACKLE: The right way...  
5. THEORY: The right way...  
6. STRATEGY: The right way...  
7. TACKLE: The right way...  
8. THEORY: The right way...  
9. STRATEGY: The right way...  
10. TACKLE: The right way...

Speed & Smarts #95



## IN THEORY

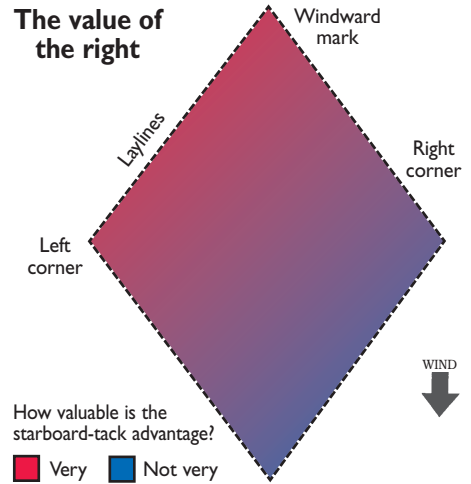
# The 'power of the right'

This page is not about politics; rather, it's a short look at when and why it may be a good tactical idea to protect the right side of the windward leg. When boats are converging on opposite tacks, the ones coming from the right side are on starboard tack, which is generally an advantage because they hold right of way over boats on port.

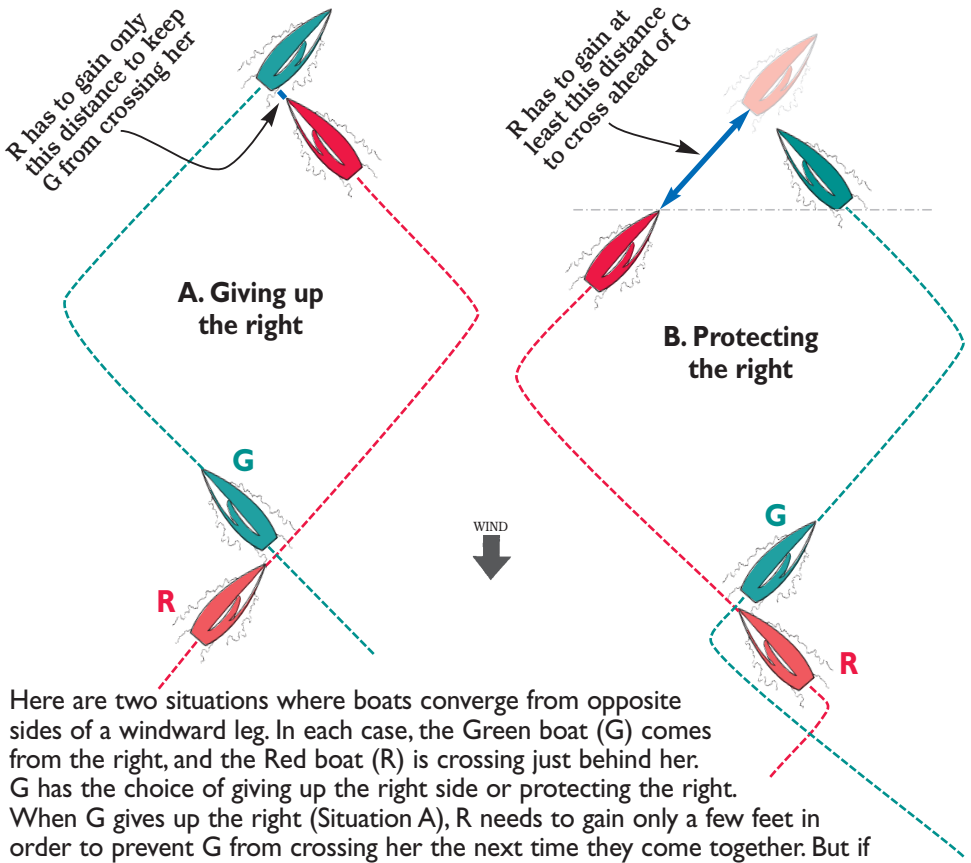
Having the right of way is usually helpful because it's easier to follow your strategy and block the chosen path of the other boat. As described below, it can also be very difficult for a boat on the left side to actually get past a boat on its right. This is particularly true as you get closer to the windward mark and the left corner (see right).

Therefore, consider protecting the right side as a tactic, especially when other factors are equal. •

### The value of the right



When boats converge on opposite tacks, the value of being on starboard tack varies according to where you are on the beat. The closer you get to the windward mark or the left corner, the more valuable it is to have the right of way because there is no longer much room for P to sail around you.



Here are two situations where boats converge from opposite sides of a windward leg. In each case, the Green boat (G) comes from the right, and the Red boat (R) is crossing just behind her. G has the choice of giving up the right side or protecting the right. When G gives up the right (Situation A), R needs to gain only a few feet in order to prevent G from crossing her the next time they come together. But if G protects the right side (Situation B), then R will have to gain more than two boatlengths before she can cross ahead of G when they converge again. That's a lot of distance to make up, especially if G doesn't allow R to get very much separation.

## IN THEORY

# Wind shadow notes

When you maneuver tactically around other boats, it's critical to understand the location, intensity and shape of their wind shadows. These areas of disturbed air to leeward and behind other boats can be very detrimental to your upwind performance, so obviously you should avoid them as much as possible.

In light air, wind shadows are especially bad. If the wind is blowing seven knots, for example, you might see five knots of breeze when you are sailing to leeward of another boat. Losing two knots of wind may not seem like much, but in the lower wind ranges it can make a huge difference in speed and pointing.

In heavy air, on the other hand, wind shadows are not so terrible. They still slow you down, but the difference between sailing in 18 knots of wind versus 16 knots is not huge. Therefore, staying in bad air for a while could be a tactical option in breeze.

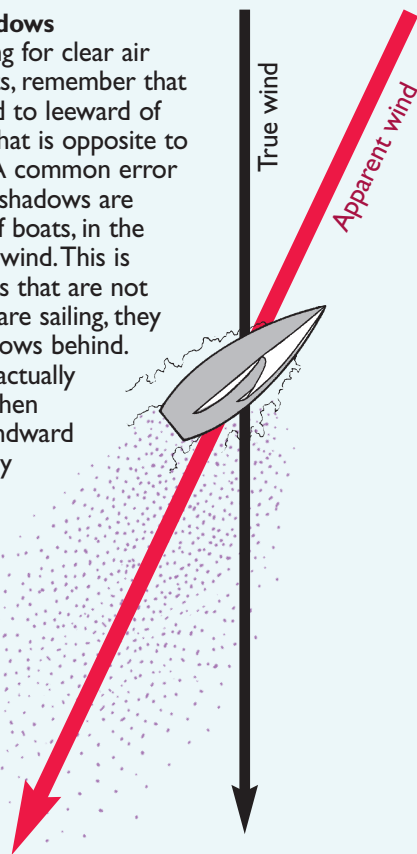
When you have a steady breeze blowing against a house, it's pretty obvious that you will feel less wind on the lee side of the house. The same is true with a sailboat, but the situation is a bit more complicated because the boat is moving and its sailplan affects the wind in different ways than a flat perpendicular wall.

Because of this, there really is an art to knowing where wind shadows are and how much they will hurt you. Here are several diagrams to explain this further.

### Apparent wind shadows

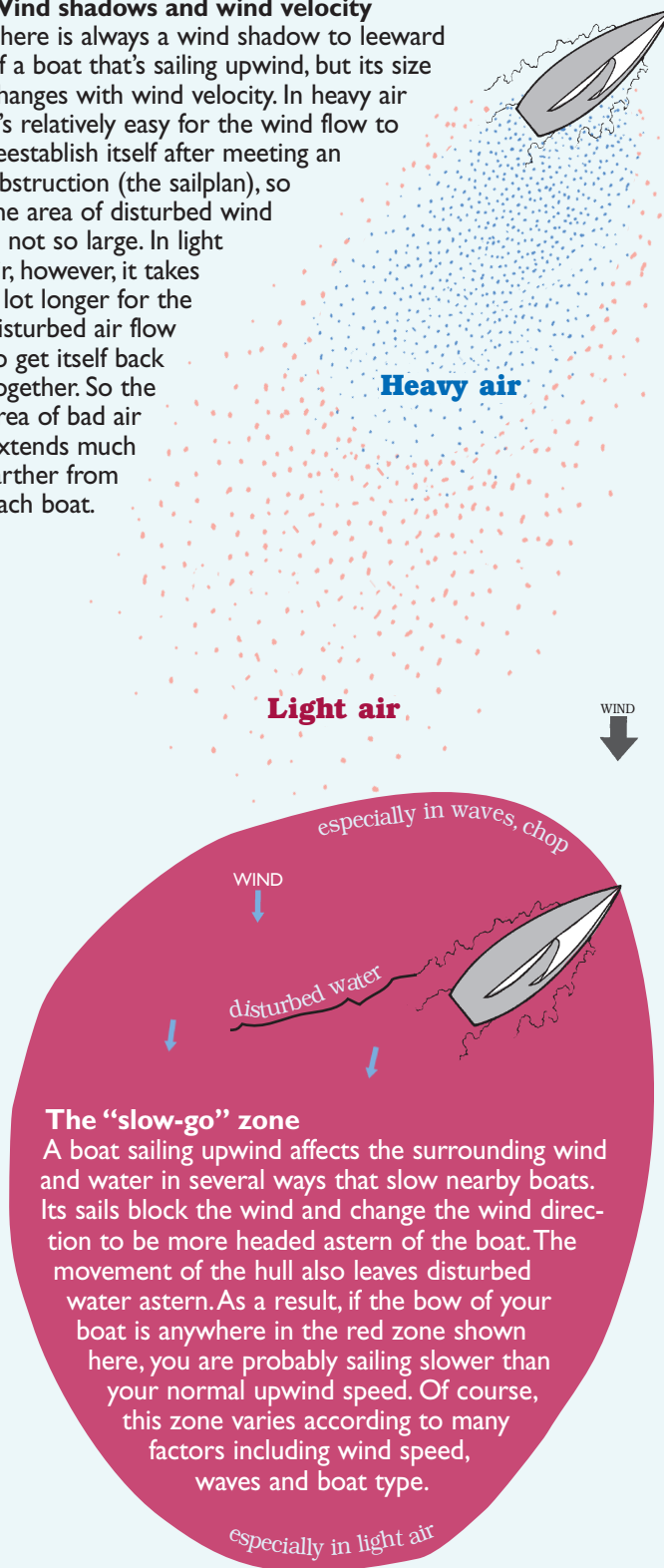
When you are looking for clear air amidst a fleet of boats, remember that wind shadows extend to leeward of boats in a direction that is opposite to their *apparent* wind. A common error is to think that wind shadows are directly to leeward of boats, in the direction of the true wind. This is correct only for boats that are not moving. When boats are sailing, they leave their wind shadows behind.

As a result, you may actually have clear air even when there is a boat to windward with their bow slightly ahead of yours. If you aren't sure about bad air, look at masthead wind pennants to see which way wind shadows are going.



### Wind shadows and wind velocity

There is always a wind shadow to leeward of a boat that's sailing upwind, but its size changes with wind velocity. In heavy air it's relatively easy for the wind flow to reestablish itself after meeting an obstruction (the sailplan), so the area of disturbed wind is not so large. In light air, however, it takes a lot longer for the disturbed air flow to get itself back together. So the area of bad air extends much farther from each boat.

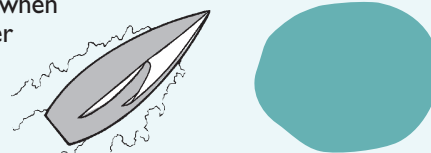


### The "slow-go" zone

A boat sailing upwind affects the surrounding wind and water in several ways that slow nearby boats. Its sails block the wind and change the wind direction to be more headed astern of the boat. The movement of the hull also leaves disturbed water astern. As a result, if the bow of your boat is anywhere in the red zone shown here, you are probably sailing slower than your normal upwind speed. Of course, this zone varies according to many factors including wind speed, waves and boat type.

### The good green zone

There are some times when the presence of another boat can actually give you better breeze for sailing upwind. If your bow is anywhere in the green circle, you will get a lift and increased pressure because of wind bending and accelerating around the sailplan of the grey boat.





# Stay ahead by covering

“Why didn’t you cover?” is often the first question you hear when you were doing well in a race but got passed by one or more boats from behind. This is a great question, but it doesn’t always have a straightforward answer.

“Covering” usually means staying between the next mark and one or more boats that are behind you (see diagram below). The goal of this tactic is simply to reduce your risk if the wind shifts (or another variable changes), and thereby increase your chances of staying in front of the boat(s) behind you.

While covering boats behind is usually a fairly sound idea, there is no rule that says you have to do it. In fact, the decision of whether or not to cover is often fairly complex. Perhaps the most critical factor to

consider is your goal in the race: In simple terms, are you trying to stay ahead of the boats behind you, or to catch the boats in front of you?

### Are you happy?

When I’m deciding whether or not to cover, I ask myself one simple question: Am I happy with my position in the race at this moment? If my answer is yes, then my primary goal is to protect what I have. And covering the boats behind is usually a good way to accomplish this.

When I’m not happy with my position in the race, then my main goal is to improve my standing in the fleet, not just maintain it. My tactics are geared toward catching the boats ahead rather than covering the boats behind.

When you’re in first place, this choice is easy: there are no boats to catch so your only goal is to stay ahead of the boats behind.

Being in last place is also pretty straightforward, but everywhere in between you have a choice: you can **cover** (look behind, be conservative, guard what you have) or **attack** (look forward, take risks, improve your place).

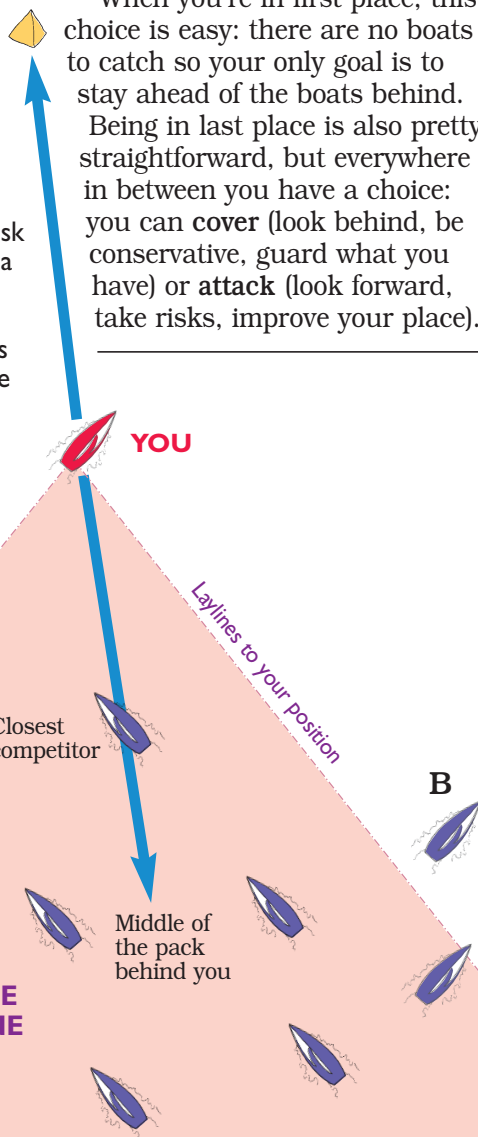
### To hurt or herd?

When covering another boat, are you trying to get farther ahead of them, or just keep them from passing you? Both are possible, but it’s difficult to hurt another boat with your wind shadow because they can simply tack away. This works only when you have them trapped in a position where they have to keep going in the same direction (e.g. they’re on the layline).

Usually your wind shadow is much more effective as a blocking tool to ‘herd’ the other boat(s) in the direction you want. For example, you can make another boat go left by placing your bad air just to their right. Many sailors think that if you want to stay close to a boat behind you should tack on them in a tight covering position. But ironically, this usually has the opposite effect since they will just tack and start sailing away from you.

### Covering basics

Whether you are covering one boat or the rest of the fleet, your basic goal is to stay between the other boat(s) and the next mark. To minimize your risk of being passed, position your boat on a line drawn between the mark and the boat you are trying to cover. If you’re covering more than one boat, draw this line from the mark to the middle of the pack. You are fairly safe as long as your competitors are inside the triangle formed by the closehauled laylines to your boat (shaded area). However, if a boat on the opposite tack (A) crosses your wake or a boat on the same tack (B) gets its bow ahead of yours, then they are getting outside your safe covering zone and should be considered threats.



### When you’d be foolish to cover

When your main goal is to stay ahead of the boats behind you, it’s usually a good idea to cover them. But one time you might not want to cover too closely is when you are sailing in oscillating winds.

In shifty conditions, your first priority should be to sail your own race. Covering can actually hurt you if you don’t play the windshifts correctly. For example, if you’re crossing another boat and you’re on a lift, you certainly wouldn’t want to tack to “cover” them because then you’d be on a header and they’d tack onto the lift.

When it’s shifty, you need to have courage. If you’re sure about the windshifts, play them and forget about the other boat(s); when you’re not sure, use a loose cover.

### When you’re not ahead

The corollary of ‘cover when ahead’ is ‘avoid cover when behind.’ You won’t pass other boats by following them, so try to split the other way.



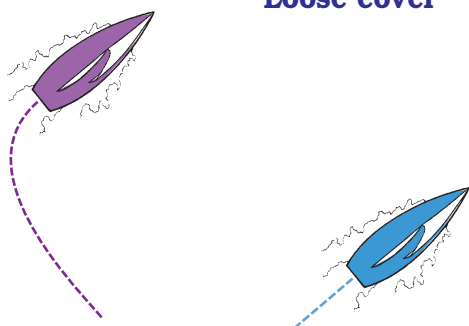
Some people think that covering means you have to tack to windward and ahead of another boat so you slow them with your wind shadow. But usually they will just tack away to keep their air clear.

One option is to tack in a position that's between a tight and loose cover, with your wind shadow hitting the mainsail of the boat to leeward. By doing this, you allow the other boat to keep her air clear by footing instead of tacking. If she chooses this option, you will gain fairly tight control as well as distance to windward.

JH Peterson photo

Of course, this tactic depends on your goal in the race. If you still have a long way to go before the finish, or if you're worried about the boats behind, or if one side of the course is obviously favored, you may want to keep following your ideal strategic gameplan, even if this means you have little chance to gain on the boats that are covering you. In the long run, playing the odds and staying "in touch" may be your best tactic. •

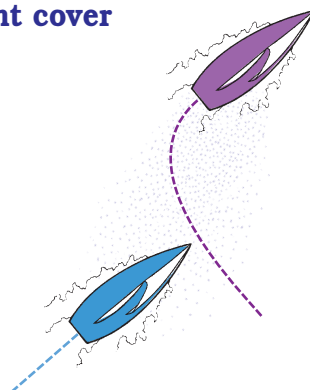
### Loose cover



You apply a **loose cover** by positioning yourself between the next mark and another boat without giving them dirty air. Usually this means you are to windward of the other boat and your bow is even with or slightly behind theirs.

Use a loose cover when: a) you want to keep going in the same direction as the boat behind; b) the boat behind is sailing toward the "unfavored" side of the course; c) the boat behind is sailing toward other boats you need to cover; and/or d) you are trying to cover several boats at the same time.

### Tight cover

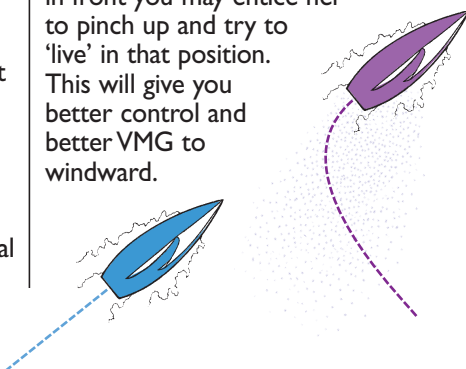


You apply a **tight cover** when you position yourself upwind of another boat so they are in your wind shadow. To do this you must tack to windward and ahead of the other boat (above).

Use a tight cover when: a) you need to beat a boat that is close behind you; b) the boat behind is sailing toward the "favored" side of the course; and/or c) the boat behind does not have the option to tack (e.g. she's on the layline).

If you know the other boat will tack away, it's often better to tack right in front of her (below). That's because if you tack close to windward she will be able to tack through your wind shadow (which means less resistance while she is head to wind). In addition, by tacking in front you may entice her to pinch up and try to 'live' in that position.

This will give you better control and better VMG to windward.



## TEASER ANSWER

The answers to all of these questions (and many more) are found in an ISAF document called "Interpretations of Rule 42, Propulsion." If you have not seen this, go to:

### [ISAF Rule 42 Interpretations](#)

As the title says, it contains many explanations of the various sections of rule 42, which are used by umpires and juries. The answers below contain references to relevant parts of the document:

- 1) False.** Unless permitted by rule 42.3, any body action that clearly propels the boat in any direction is prohibited (see BASIC 4).
- 2) False.** All actions listed in 42.2 are *always* prohibited (BASIC 5).
- 3) True.** You're allowed to respond to changes in wind and waves (PUMP 2).
- 4) False.** Crew can sit anywhere as long as they are static (ROCK 4).
- 5) True.** See rule 42.2e.
- 6) True.** The only limit in tacking is that you can't come out of the tack faster than before it (ROCK 9).
- 7) False.** See PUMP 7. But if you repeat an unsuccessful pump to get on a surf, you may break rule 42.
- 8) True.** You can scull when you are above closehauled and moving slowly, even if you gain speed (SCULL 1).

Updated for the 2013-2016 rulebook



# Smart moves near the laylines

The layline is a critical part of any windward leg because every boat has to get there eventually and, once they do, it's a tactical dead-end. The closer you come to a layline, the fewer options you have, so you need smart tactics whenever you are approaching (or avoiding) it.

## When you're behind

Going to the layline when there are boats ahead of you is like running into a dead-end alley while you are being chased: there is no escape. So when you're behind, a basic tactical rule of thumb is to *stay away from the laylines*.

Of course, you can't avoid the layline forever. But the farther you are from the mark when you reach the layline, the more risk you take (of other boats tacking on you). So consider tacking short of the layline (see diagram) to keep options open.

As you get closer to the mark, it's OK to go to the layline, especially when there aren't so many boats around you. But if you think other boats may tack on you, go a little past the layline before tacking. This will encourage them to tack in front of or to leeward of you (where they won't hurt you so much), and it will give you room to foot slightly if they do tack on your wind.

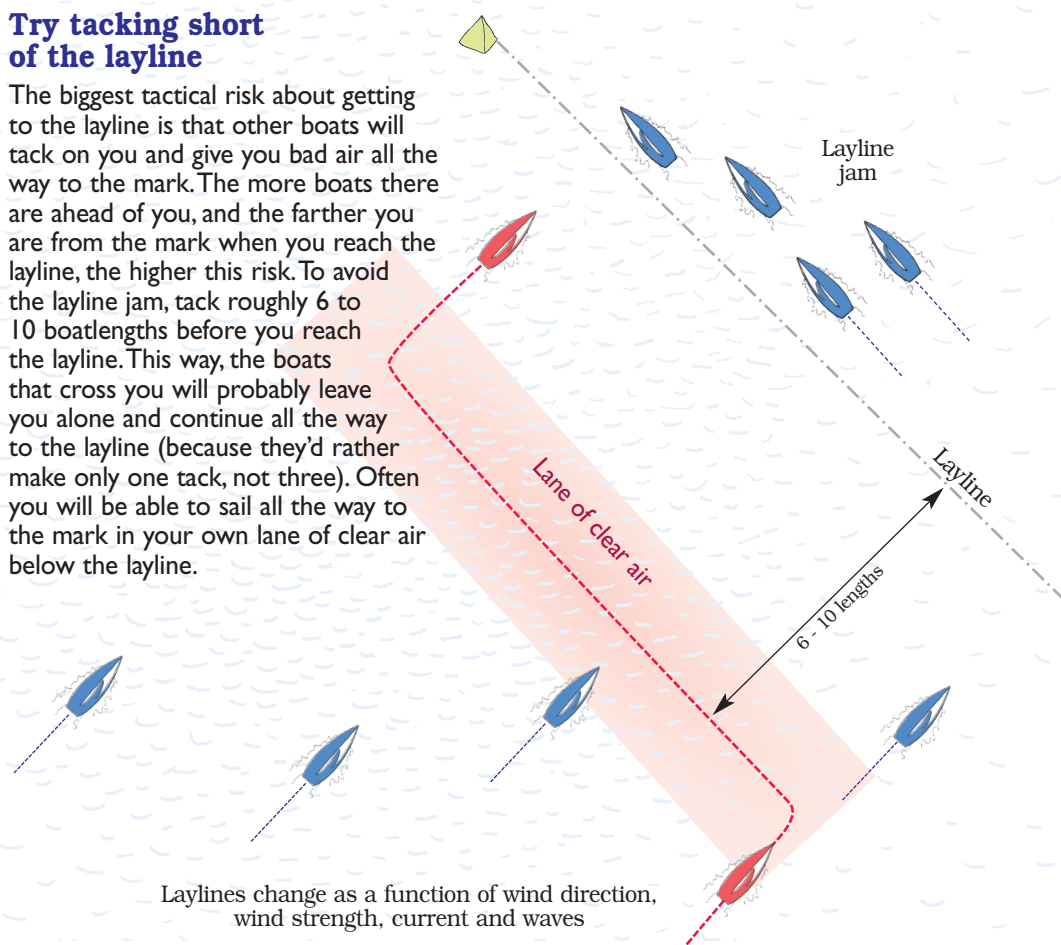
## When you're ahead

When you are concerned primarily about the boats behind you, the layline is your friend because once you are there it's very difficult for other boats to pass you. Therefore, another good tactical rule of thumb is to *push the boats you are beating toward a layline*.

If possible, 'herd' the boats behind you toward the layline on the unfavored side of the course (so you will gain strategically as well as tactically) and/or toward whichever layline is closer (so they reach the dead-end as soon as possible). The further you are from the mark, the more effective this tactic becomes.

## Try tacking short of the layline

The biggest tactical risk about getting to the layline is that other boats will tack on you and give you bad air all the way to the mark. The more boats there are ahead of you, and the farther you are from the mark when you reach the layline, the higher this risk. To avoid the layline jam, tack roughly 6 to 10 boatlengths before you reach the layline. This way, the boats that cross you will probably leave you alone and continue all the way to the layline (because they'd rather make only one tack, not three). Often you will be able to sail all the way to the mark in your own lane of clear air below the layline.



Laylines change as a function of wind direction, wind strength, current and waves



It's usually not a great idea to get to the layline first because boats that are ahead of you will then be able to tack on your wind. Therefore, before you reach the layline, take a look at the boats to windward. Are they ahead of you? If a boat on your windward hip is far enough advanced to tack in a safe leeward position, then they will give you trouble and you should consider tacking before the layline. But if they can't lee-bow you, then you can go to the layline and they won't be a problem.

JH Peterson photo

### The port layline temptation

When you must round the windward mark to port, there is often a traffic jam on the starboard-tack layline but hardly anyone on the port-tack layline. That's because it can be difficult to tack near the mark without breaking a rule (see rule 18.3). However, many of the boats on starboard tack have to sail in bad air or overstand the mark. That's why it's often tempting to approach on port.

When you do this, however, you must be careful tactically. If you come right in to the mark on the port-tack layline you will be asking for trouble, especially if you're in the middle of a pack.

It's almost always better to be at least several lengths to leeward of the port-tack layline. You want to be far enough away so that, when you reach the starboard layline and tack for the mark, you have room to complete your tack (i.e. get to a closehauled course on starboard tack) before you enter the two-length zone around the mark. This will make it much easier to avoid breaking any rules (especially 18.3).

### Two tacks or sail in bad air?

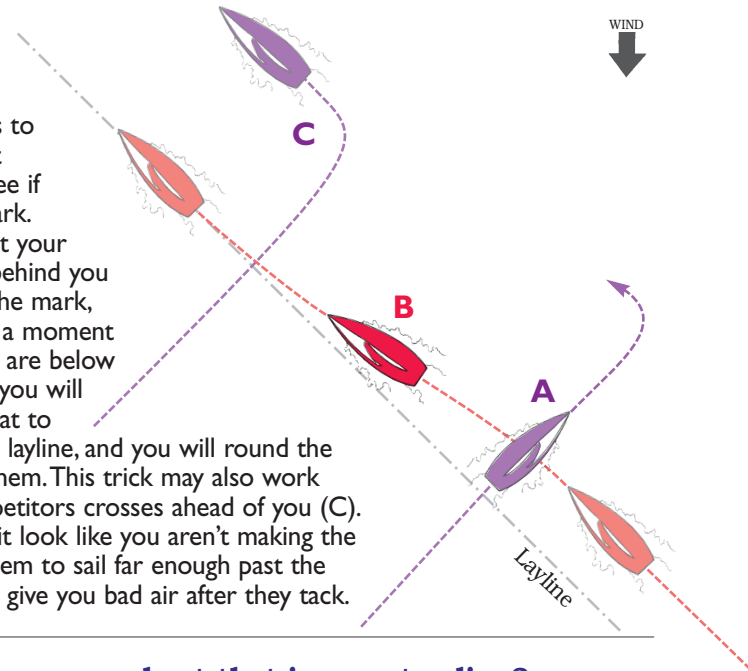
If you're on the layline and a boat tacks on your wind, should you tack twice to get clear air, or just continue sailing to the mark in bad air? Your best tactical option depends on at least two factors:

1) **How far you are from the mark.** Obviously if you are only a few lengths from the mark it would be better to keep going, but if you are half a mile away it's probably better to make two tacks. The tradeoff point is some place in between where the cost of two tacks is equal to the cost of staying in bad air; and

2) **How much you are being hurt by bad air.** If it's windy and you can sail almost as fast in dirty air, then you should probably keep going. But if you're sailing in light air (where wind shadows can really hurt), then you should definitely consider two tacks (especially if there is any chance the bad air means you won't fetch the mark). •

### Try a "head-fake" on the layline

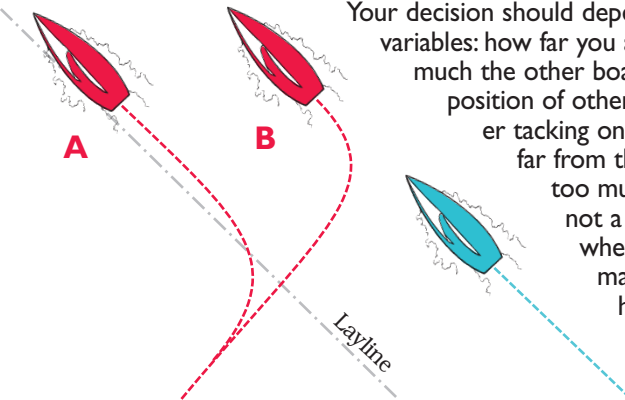
When you're trying to judge the layline, it helps to look at other boats that cross ahead of you to see if they are fetching the mark. Other boats also look at your angle when they cross behind you (A). If you are fetching the mark, consider bearing off for a moment to make it look like you are below the layline (B). This way you will encourage the other boat to continue sailing past the layline, and you will round the mark farther ahead of them. This trick may also work when one of your competitors crosses ahead of you (C). If you bear off to make it look like you aren't making the mark, you may entice them to sail far enough past the layline that they will not give you bad air after they tack.



### Tack on the layline or on a boat that is overstanding?

A common tactical situation near the layline happens when you converge with another boat that is overstanding the mark. If you are ahead of that boat, should you tack on the layline (A), or continue past the layline so you can tack on the other boat and give them bad air (B)? When you're in this position on the race course, it often seems like tacking on the other boat is the better option. But more often than not, tacking on the layline is a smarter move.

Your decision should depend on at least three main variables: how far you are from the mark, how much the other boat has overstood, and the position of other boats. You should consider tacking on the other boat if they are far from the mark, not overstood by too much and/or other boats are not a factor. Tack on the layline when you are closer to the mark, when the other boat has overstood by a lot and/or you are worried about nearby boats.



## SPEED & Smarts

# 96

Speed & Smarts (ISSN 1075-5772) is published by  
Four Winds Inc. PO Box 435, Easton, CT 06612-0435 USA  
Phone: 1-800-356-2200 or 203-445-0734 Fax: 203-445-0735

E-mail: [SpeedandSmarts@optonline.net](mailto:SpeedandSmarts@optonline.net)

Web site: [www.SpeedandSmarts.com](http://www.SpeedandSmarts.com)

FB: [www.Facebook.com/SpeedandSmarts](http://www.Facebook.com/SpeedandSmarts)

Publisher: David Dellenbaugh 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 any pages for their own personal use.

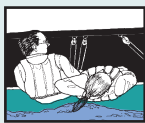
#### Subscriptions:

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.



# Help your skipper with tactics

One key to successful tactics is knowing what's happening all over the course so you can anticipate the boat-on-boat moves you need to make. To do this, it's best to have as many sets of eyes looking around as possible. Therefore, from a tactical point of view, your main job as a crewmember is to help your skipper look around and think ahead. Here are seven tips on how you can do this:

1) Keep a good lookout for other boats, and report anything you see that might even remotely affect your tactics. This includes right-of-way boats, boats converging with you, boats that may give you bad air and so on. Concentrate on the areas where your helmsperson has a hard time seeing (see illustration).

If you're on starboard tack, don't assume it's not important to give a warning about approaching port tackers. Even though you have the right of way, this information could be important, especially if your game plan is to go left and you want to prevent a lee bow.

2) Keep making observations about laylines, the location of the next mark, which side of the course is favored and the position of the rest of your fleet. All this may have a direct influence on the tactical

decisions that your team makes.

3) Speak directly and clearly to the person in charge of tactics on your boat. On a one-design this is usually the helmsperson. On a big boat, you may have a separate tactician who gathers the kind of information that you are giving.

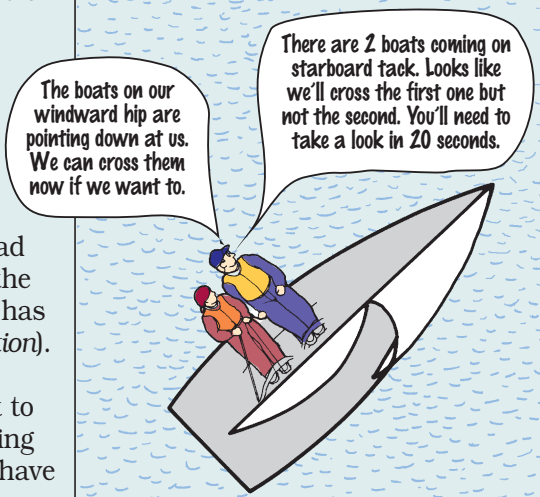
4) You don't have to be an expert tactician in order to help.

In fact, it's usually best simply to report the facts as you see them and avoid giving opinions about tactics. For example, you might say something like: "There's a starboard tacker about 8 boatlengths away and we're not crossing them." This is much more helpful than, "Looks like we'll have to tack soon."

5) Don't assume your tactician or helmsperson sees anything. Assumptions often lead to trouble, so if in doubt, speak up and be specific. Say something like, "Do you see #5045 on starboard tack?"

6) Try to keep track of the strategy your boat is following up the beat. In simple terms, do you favor the right or the left? This will help you give more useful tactical input and allow you to anticipate your next move when you come together with other boats. Many skippers don't do a good job of verbalizing their game plans (especially if these change during the beat), so you may have to ask for this.

7) Prepare yourself for likely maneuvers. Good boathandling is a key to executing tactical moves. If you know your strategy is to protect the left side of the course and you see a starboard tacker approaching, for example, there's a good chance you will tack. So make sure you are ready to do the best tack possible. •



The boats on our windward hip are pointing down at us. We can cross them now if we want to.

There are 2 boats coming on starboard tack. Looks like we'll cross the first one but not the second. You'll need to take a look in 20 seconds.

**When you're not steering, help your skipper watch out for other boats. The helmsperson has two major blind spots where he or she can use all the tactical input possible. These are to leeward and ahead (behind the jib or genoa) and to windward and behind (over his/her shoulder). All crewmembers should try to keep a good lookout in these areas.**

**SPEED&Smarts**

P.O. Box 435, Easton, CT 06612

[SpeedandSmarts@optonline.net](mailto:SpeedandSmarts@optonline.net)

This issue was updated in January 2014.

To subscribe, renew or just learn more:

**[Speed & Smarts web site](#)**

**[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.