



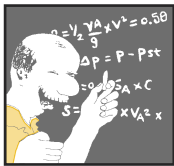
## ISSUE # 123

### Big-Fleet Racing

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### BRAIN TEASER

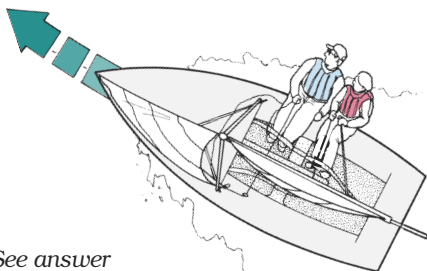
## Tactical speed . . .



You are racing upwind in a large fleet of one-design keelboats. The wind velocity is fairly steady, but the direction is moderately shifty. As the tactician on

your boat, you are responsible for telling the helmsperson when to sail faster or slower than the speed that produces your optimal upwind velocity-made-good. Considering all possible tactical and strategic factors:

- 1) Name three situations when you might temporarily sail **faster** (and lower) than normal.
- 2) Name three situations when you might temporarily sail **slower** (and higher) than normal.



See answer on page 12.

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## Keys to success in large fleets

Racing in a big fleet is challenging because there are lots of boats, and most of them usually get in your way!

How big is 'big'? It's all relative to the size of your 'normal' fleet. To some sailors, a large fleet is 90 or 100 boats; to others it may be only 30 or 40. The actual number doesn't matter as much as your own perception of fleet size.

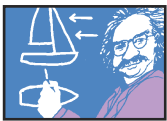
Whenever you are racing in a big crowd, certain characteristics make this experience unique. For example, the starting line has to be longer than usual, and so do all the legs of the race. The fleet spreads much farther apart laterally, so the boats on each side of the course have more leverage and therefore better chances to gain (or lose!).

In big fleets there are more distractions caused by other boats, and it's harder to find clear air. There is usually a crowd on the starting line and at the marks, with lots of disturbed air and water. It's tough to be consistent, so scores are more erratic. You might win a regatta with an average of seventh place, for example, or lose it because you had to count a 57th!

If you want to do well in a large fleet, you need to recognize how it differs from a small fleet and figure out how to succeed because of, or in spite of, these differences. That's what this issue is all about! •



The recent J24 World Championship attracted nearly 100 boats that all raced in one fleet! This created classic large-fleet conditions – huge starting lines, long courses, crowded mark roundings, lots of separation on the beats and inconsistent scores. In fact, the boat that finished second overall had an average race score of just over 11th! We will use this regatta as a reference point throughout the rest of this issue.



# Adjust your mind-set for big fleets

The recent J/24 World Championship featured a fleet of 100 boats and produced some classic big-fleet competition. Racing in a large fleet like this is quite a different game than sailing with only 20 or 30 boats. It brings a whole new set of factors and priorities that you must consider. Here is a closer look at some strategic implications.

## General principles

There are two basic qualities that separate a large fleet from a small fleet. First, and foremost, there are more boats on the course. This may seem obvious, but the presence and proximity of numerous boats will

affect your tactics, strategy and speed more than any other factor.

The second characteristic is that, in a big fleet, almost everything is bigger or longer – the starting line, the windward legs and so on. Consequently, the boats spread farther apart, and there are bigger chances for gains (and losses).

Because of these factors, you should follow certain rules of thumb when racing in a big fleet:

- *Sail more conservatively.*

When you have a lot of traffic and boats are spread out across the course, the consequences of making mistakes are more severe. So play the percentages; that is, stick to

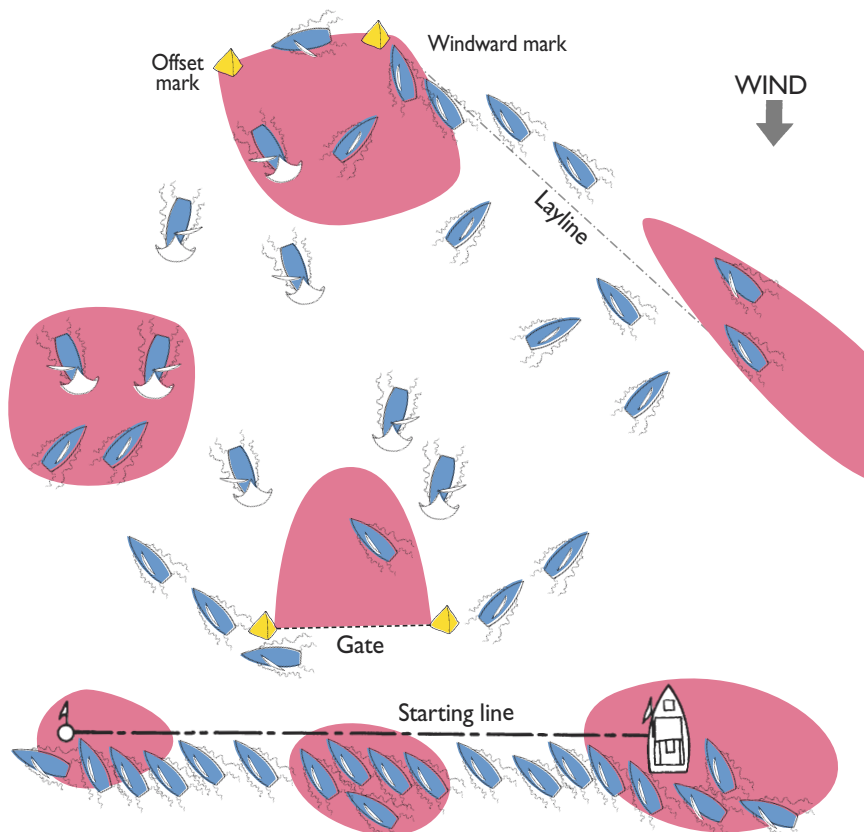
strategies that have the highest chance of success.

• *Develop a well-thought-out strategy* before and during the race, and then follow it. With a lot of boats and a large course, you won't be able to change sides or adjust your gameplan as easily as you can with fewer boats. So work harder at going the right way in the first place.

• *Use aggressive tactics* to stick to your strategy. In a large fleet you have fewer and smaller windows of opportunity to go where you want. Take full advantage of these, and try not to let other boats dictate where you sail.

• *Don't get caught up with just one or two competitors.* In a large regatta you are racing against the fleet more than individual boats. So unless you are near the finish, don't change your gameplan to maneuver against particular boats (e.g. don't get into a luffing match). If you do this, you will end up losing

## From the big-fleet overhead 'traffic cam'



A big key to success in large fleets is avoiding high-traffic zones. A boat that is sailing by itself will almost always go faster than every boat in a pack, so keep away from congested areas on the starting line, near laylines and around marks. You can't avoid all of these completely, but plan ahead and be conservative to minimize major problems. If you stay away from other boats as much as possible, you'll have faster boatspeed, more strategic options and a better chance of following your gameplan.

## SPEED & Smarts #123

Speed & Smarts (ISSN 1075-5772) is published by Four Winds Inc.  
 Address: PO Box 435, Easton, CT 06612  
 Phone: 1-800-356-2200 or 203-445-0734  
 Fax: 203-445-0735  
 Subscribe: 1-800-356-2200  
 E-mail: SpeedandSmarts@optonline.net  
 Web site: www.SpeedandSmarts.com  
 Facebook: www.Facebook.com/SpeedandSmarts  
 Publisher: David Dellenbaugh Manager: Joanne DeLuca Art: Brad Dellenbaugh

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The *Paper version* is now available only in the U.S. (\$45 or \$80 for two years) and Canada (\$50 or \$90 for two years). Speed & Smarts is published bi-monthly. Issues are numbered sequentially, and issue dates are approximate.

Postmaster: Periodicals postage has been paid at Bridgeport, CT.

Changes to: Speed & Smarts, P.O. Box 435, Easton, CT 06612 USA



The area just upwind of the leeward gate marks is a good place to avoid in large fleets. This spot is always crowded because it's where boats coming downwind converge with boats sailing upwind.

As a result, there is a lot of bad, disturbed air here and also usually a large and difficult chop from boats going in many different directions. In addition, there are boats getting in your way and other boats forcing you to get out of their way.

When you enter this area you will not be sailing at full speed, which means you will be losing to all other boats in the race. This is especially bad in a large fleet!

JH Peterson photo

to every other boat in the fleet.

- *Go for consistency, not victory.*

At the end of most large regattas, the sailors at the top of the scoreboard are usually the ones who were the most consistent, not the ones who had the most first places. The J/24 Worlds was a good example. The boat that finished second overall (out of 100 boats) had an average score of just worse than 11th (not including their throwout)!

So don't try to win every race. If your goal is to be first (or even to be in the top five) you will be tempted to take too much risk, and that could mean some really bad scores.

A reasonable goal might be to finish 10th in each race. Assuming you will catch a few boats during the race, this means you want to aim for 15th, or maybe even top 20, at the first windward mark. This will obviously lead you to take a very different, and more conservative, approach to the first beat than if you are trying to win the race.

In a big fleet you should follow all the same rules of thumb that you use in a small fleet. But you have to adjust your thinking because, with so many boats, it is harder to stay on track and more important to avoid mistakes. •

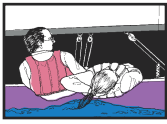
## Avoid these 10 mistakes in big fleets

In a big fleet, mistakes are usually more costly than in smaller fleets. The presence of more boats tends to compound errors and make it harder to recover. If you get a bad start in a large fleet, for example, it's tough to find clear air when there are so many boats ahead of you. This is not such a problem with fewer boats.

The key is to minimize mistakes, especially in larger fleets. That seems obvious, and it's something sailors should try to do in fleets of all sizes. But the difference is that most big-fleet errors come with a more significant penalty, so you need to reduce your risk of making them in the first place.

Since there is such a high cost to having a bad start, for example, don't go for the best start in the fleet. Instead, look for a high-percent-age start in an area of the line where there aren't so many boats. This may mean you have to give up a top ten start in order to ensure that you don't have a bottom ten start! Here are 10 errors to avoid:

- ✓ Start in a mob at the favored end (or anywhere else).
- ✓ Start toward the pin, get forced to tack and end up passing behind all the boats that started to windward of you.
- ✓ Start in the middle of the line without a good line sight.
- ✓ Break a rule and spin penalty turns early in the race.
- ✓ In light or spotty breeze, play the middle of the first beat.
- ✓ Get into a luffing match (or any other kind of tactical engagement) with one or a few other boats.
- ✓ Be slow and/or make boathandling mistakes.
- ✓ Get to any layline early.
- ✓ Sail into the 'death zone' just to leeward of the windward mark or to windward of the leeward gate.
- ✓ Spend a lot of the race sailing in bad air or tacking.



## UPWIND STRATEGY

# The middle: Love it or leave it?

The middle of the race course is one of those “love it or hate it” places. Some sailors are always trying to make the middle work, while others seldom go there.

In a big fleet, the central part of the beat has unique advantages and disadvantages. No matter how you feel about the middle in smaller fleets, you might want to reconsider your opinion in bigger fleets, for the following reasons.

### The case for the middle

In a large fleet, staying near the middle of the windward leg is good for at least two reasons. First, it keeps you away from the laylines, which are almost always crowded in big fleets – if you reach a layline too early, you will either have to sail in bad air for a long time or overstand and lose a lot of distance.

Second, playing the middle of the beat helps you avoid the disaster of being on the wrong side of the beat. Long windward legs mean the boats get far apart; even a small windshift will produce huge gains and losses. When you’re not sure what the wind will do, stay near the middle to avoid huge losses and losing touch with the leaders.

There are certain conditions when your odds of success in the middle are highest (see box next page). These include times when: 1) you are sailing in strong breeze; 2) you are fast and near the front of the fleet (i.e. when there aren’t many boats ahead of you to give you bad air); 3) the fleet is spread out; or 4) the wind is oscillating (because once you reach a layline you can no longer play the shifts).

In these cases, follow the basic

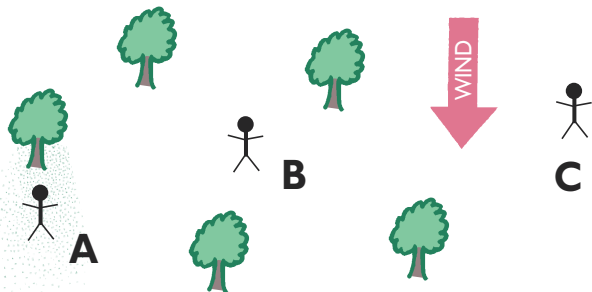
rule of thumb that says, “Sail the longer tack first.” Look for lanes of clear air that lead you back toward the middle and away from the laylines. This will minimize strategic and tactical risk.

### The case against the middle

There are also several good reasons to *avoid* the middle of the beat in a big fleet. For one thing, most of the boats are there, so you’ll find a lot of bad air and disturbed water. Unless you have a very good start and fast speed, it can be difficult to get a lane of clear air, and you may end up doing way too much tacking.

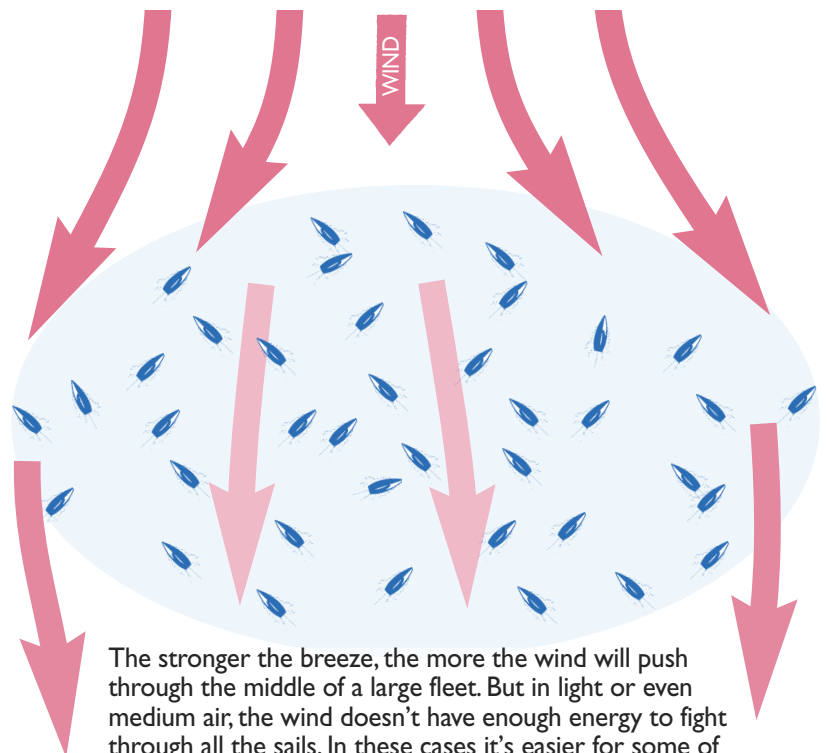
A second reason to avoid the middle is that there is often less breeze there than on the sides of the fleet (see below). The wind tends to treat the fleet as one large obstacle, so much of it flows around and

## Understanding the ‘snow-fence’ effect in large fleets



We know from everyday experience that wind flow is interrupted by objects in its path. If you are standing in the lee of a big tree (A), for example, you won’t feel nearly as much wind as a person standing in an open field (C). This is obvious, but even if you aren’t right behind a tree (B), you will feel less wind if there are a bunch of trees around you. That’s because, to a certain extent, the wind sees the group of trees as one large obstacle, and it’s easier for some of the wind to flow over or around the trees.

A similar thing happens with a fleet of sailboats. Obviously there are wind shadows just to leeward of every boat, and that’s why racers try to avoid being in those positions. But there is also a macro effect from the entire fleet. The array of sails spread out across the water acts like a snow fence in a field – even though there are many gaps, the wind on the lee side is significantly weaker. The bigger and more bunched the fleet, the more pronounced this effect will be.



The stronger the breeze, the more the wind will push through the middle of a large fleet. But in light or even medium air, the wind doesn’t have enough energy to fight through all the sails. In these cases it’s easier for some of the air to flow over or around the mass of the fleet. That’s why you often find more wind pressure at the sides than in the middle, rear or even at the front of the pack (since the wind may start to lift up as it reaches the lead boats).

over all the sails. This is especially true in light air, when the wind has less energy to push through the fleet. In this condition, boats in the middle often lose to boats that play *both* sides of the course!

### Every beat is different

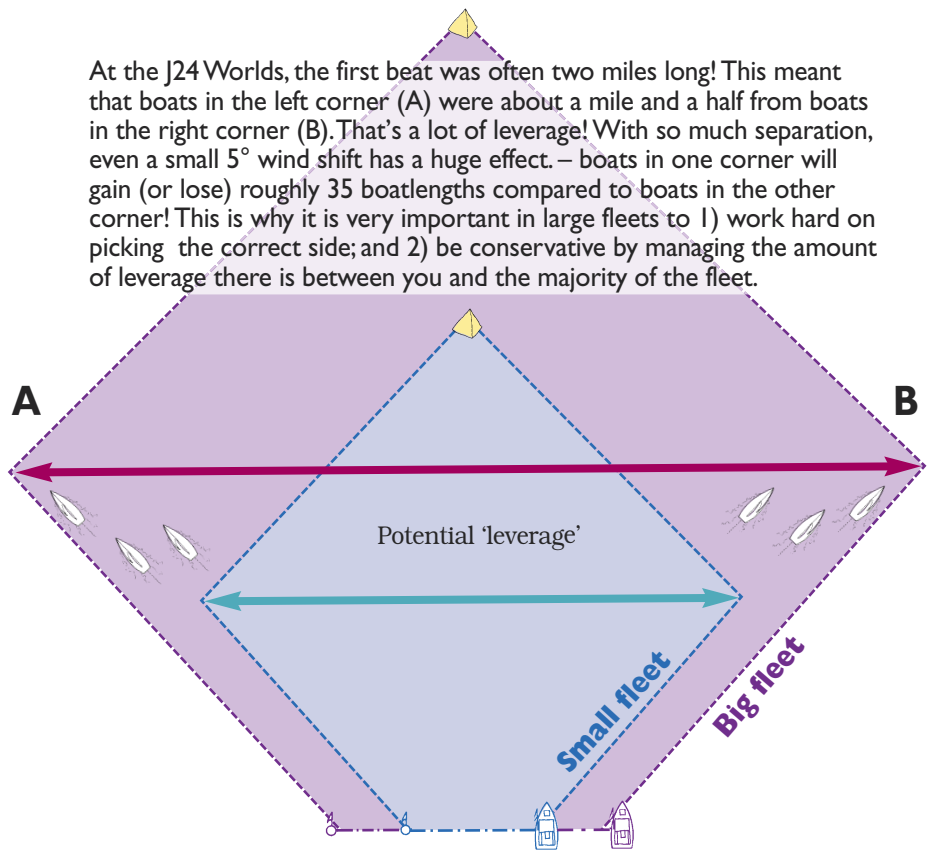
It's hard to make a rule of thumb about what to do on beats in big fleets because the relevant mix of variables is always unique and changing. For example, how strong is the wind, and how good is your boatspeed? Where are you in the fleet, what is the windshift pattern, and where are all the other boats?

If we want to generalize, we could say that the middle of the windward leg gets better when the wind is stronger and oscillating, and when you have good boatspeed with few competitors around you.

On the other hand, you want to avoid the middle when the wind is lighter and when it is shifting persistently, or when you are slow or there are lots of boats nearby. •

## Why 'leverage' is a big factor in big fleets

At the J24 Worlds, the first beat was often two miles long! This meant that boats in the left corner (A) were about a mile and a half from boats in the right corner (B). That's a lot of leverage! With so much separation, even a small 5° wind shift has a huge effect. – boats in one corner will gain (or lose) roughly 35 boatlengths compared to boats in the other corner! This is why it is very important in large fleets to 1) work hard on picking the correct side; and 2) be conservative by managing the amount of leverage there is between you and the majority of the fleet.



## Consider playing the middle in these situations:

In big fleets it's good to be cautious about getting stuck in the middle of the beat. But the sides of the course are not always better! Here are a few times when it may work to stay in the center:

**Strong breeze** – Two things happen when there's a lot of wind. First, the moving air has enough power to push all the way through the fleet, even when there are a lot of boats. So the difference between wind strength in the middle of the course compared to the sides is negligible or small. Second, even if there is a tiny bit more breeze on the sides, this small difference will have a minimal impact on boatspeed. When you have a lot of wind the boat is already going almost as fast as it can, so one or two more knots of breeze won't make much difference. But in light air when you're starved for power, even a little extra wind can make a huge difference.

**Leading the fleet** – The boats at the front of the pack usually experience more wind than boats farther back because the breeze has not yet lifted up over the fleet or been slowed by dozens of sail plans. Therefore, the leaders can make the middle work in some races where it doesn't work for anyone else. In fact, many good sailors tend to start conservatively in the middle and stay there until they see which side is working – then they head that direction.

Being in the middle puts you behind the lead boats on the favored side, but it's good insurance against committing to the wrong side too early.

**Oscillating shifts** – When the wind is phasing back and forth, getting too close to the sides can be a killer. As you approach the laylines you lose the ability to play shifts because sooner or later you will be overstanding the mark on the lifted tack. In many cases, the boats that come out ahead are the ones that stay off the laylines longest (i.e. the boats in the middle). This usually requires at least a moderate amount of wind – otherwise the better pressure on the sides will more than offset the ability to play shifts longer in the middle.

**Spread-out fleet** – When a lot of boats are bunched closely together, the wind sees the fleet as one large object, and it tends to flow over or around them. But as the boats spread out, the object is less solid. It's easier for the wind to blow through big holes in the fleet, and this means there is less and less advantage to being on the edges.

The fleet is closest together on the first beat, so if you are ever going to avoid the middle that is a good time. But usually by the second (and especially on the third) beat, the boats stretch out a lot more. That's when it may work better to play the middle.



# Upwind tactics in big fleets

The bigger your fleet, the more boats there are to get in the way of your strategic gameplan. In order to stay on track, therefore, you need good boat-on-boat tactical moves.

In a small fleet, you may choose to maneuver tactically against one or two other boats, even early in a race. These moves let you to follow your strategy, but they also help you beat those boats. With a big fleet, however, you can't usually afford to mess with individual boats (unless it's late in a race or series). You have to keep the big picture firmly in mind, and your tactics should be geared toward groups of boats, not just one or two.

For example, in a big fleet you should almost never tack on one other boat just to give them bad air. Instead, tack in the place that's best for you relative to all the rest of your competitors.

Try to put yourself in strong positions relative to the bulk of the fleet rather than to single boats. If there is a pack of ten boats close behind you, give them a loose cover and stay between this group and the favored side of the course. Don't worry about two or three boats that bang the other corner – you can't cover everyone, and if you stay ahead of ten it won't matter so much if a few happen to pass you.

### Minimize risk with tactics

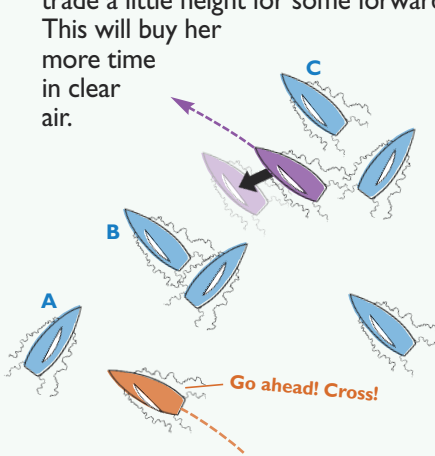
In a small fleet, you can take a risk and still have a fair chance of recovering if it doesn't work out. But in big fleets, mistakes are more costly. If you foul another boat and take a Two-Turns Penalty, for example, you might lose 25 boats (instead of just five in a small fleet)! It's usually pretty hard to work your way back through 25 boats, so minimize risk and improve consistency. Here are some specific ideas:

- **Anticipate!** Looking ahead is important in any fleet size, but it's especially critical in big fleets. When you are sailing on a course with so many other boats, you have to ►

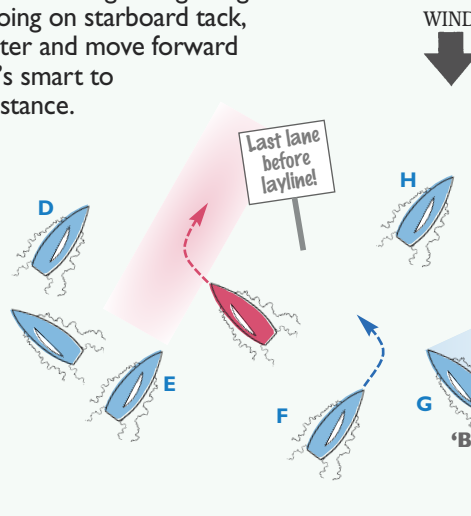
## Fight for lanes of clear air

In big fleets, finding and maintaining clear air is a huge priority. Often it's better to go the 'wrong' way with clear air than to go the right way and risk sailing in bad air for part of the beat. Of course, the ideal thing is to go the right way with clear air. Here are some ways to do that.

The **PURPLE** boat has clear air but she is in danger of getting rolled by Boat C. If she wants to keep going on starboard tack, she should bear off slightly, go a little faster and move forward on C. Purple has room to leeward, so it's smart to trade a little height for some forward distance. This will buy her more time in clear air.

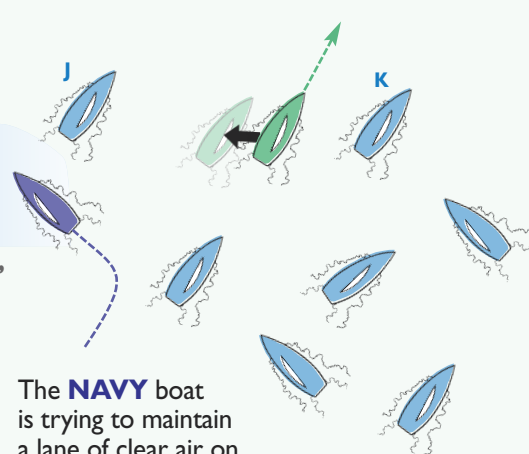


If the **ORANGE** boat tacks now, she will not have a lane of clear air. Therefore, the last thing she wants is for Boat A to tack on her leebow. It is much smarter for her to bear off and wave A across; this way she keeps clear air on starboard tack and she will be able to pick her place to tack onto port (instead of being forced to do so by another boat).

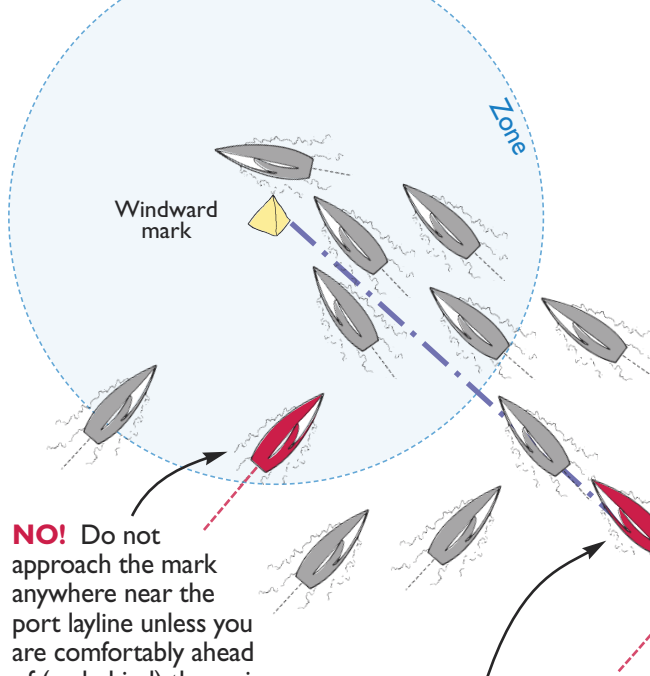


The **RED** boat wants to go a little farther to the left side of the course. However, by looking ahead she can see there will be a number of boats coming out of the left corner ahead of her. If she goes behind Boat D, she may not get a lane of clear air on port tack until she gets to the layline (or beyond). Therefore she tacks, trading her ideal strategy of going farther left for a sure lane of clear air away from the layline.

The **GREEN** boat wants to go right but she is almost falling into the bad air and water of Boat K and therefore in danger of losing her lane. One option for Green is to shift into point mode for a bit and try to increase the gap between her and K. She can afford to exchange forward speed for height because she is not yet in danger of being rolled by Boat K.



The **NAVY** boat is trying to maintain a lane of clear air on starboard tack. She has cleverly positioned herself to windward and behind Boat G, just far enough away to keep her air clear. This way G will act as a blocker to incoming port tackers (e.g. F) that might be a threat to tack on Navy's leebow and destroy her valuable lane.



## Approaching the top mark

The windward mark is challenging because that's the first place where the entire fleet comes together after the start. In a big fleet there are usually lots of boats converging here, and this creates the potential for big gains and losses. Here are some strategies for how you can minimize mistakes.

**NO!** Do not approach the mark anywhere near the port layline unless you are comfortably ahead of (or behind) the main pack. In a large fleet you will typically find a long line-up of boats approaching the mark on the starboard layline. Often there is no way through this 'fence' of boats – your only options are a risky tack into the lineup or a large, costly duck behind them. On the other hand, a port-tack approach can be a good idea (because it avoids problems on the starboard layline) when you are not in too much traffic and you're confident of finding a hole.

**NO!** Do not tack right on the layline unless you are absolutely sure you will fetch the mark. In a big fleet, the layline is crowded and unpredictable. Other boats will likely tack on your leeward or on your wind, and you probably won't be able to tack because of starboard tackers on your windward hip. In addition, there is always one or two (or more) boats that hit the mark, get stuck on the anchorline or end up shooting head to wind. If you are right on the layline you will have few good options for avoiding all these problems.

**NO!** Do not get to the layline early. One thing you can always count on in large fleets is a long procession of boats on the starboard-tack layline! To get clear air, each successive boat has to go a little farther past the layline, which costs them more distance. Once you are on the layline you lose the ability to play windshifts. And in big fleets there is a high probability that other boats will tack on you and give you bad air all the way to the mark. To avoid this you have to overstand a lot, which is a bad idea, so avoid getting near the layline in the first place.

**YES!** Do overstand the mark slightly, and do get to the layline roughly 5 to 10 boatlengths from the mark. This is far enough to avoid the perils of a port-tack approach inside the zone, but not so far that you risk the danger of getting to the layline too early. Overstanding by a boatlength or two is smart insurance against potential mishaps at the mark. It's just far enough so other boats may not tack on your wind; if they do you will be able to foot off a bit to maintain speed and still fetch the mark. This gap also allows you to sail over and around any boats that may get stuck at the mark.

make lots of decisions, and often you don't have many good options. The more you can anticipate (i.e. think in advance about) each situation, the better your choices (and therefore your results) will be.

**Avoid the herd mentality!** You will always have better boatspeed and more strategic options if you stay away from the pack as much as possible. Of course, when the entire fleet is obviously doing the right thing, you have to go with them. But don't ever make a move just because it's popular. If you disagree with the fleet or even if you're 50-50, make the choice that takes you away from other boats. Sometimes, such as on the starting line or when you have a lane of clear air

on the beat, it may actually pay to take the unfavored and unpopular option just to make sure you have space and speed.

**Give up a little.** In a big fleet mistakes are costly, so reduce the risk you take. Often it's better to give up your rights, or sail extra distance, to buy some insurance.

For example, if you have a good lane of clear air on starboard tack and you like the left side, don't ever yell "Starboard" at a boat that is approaching on port tack. The last thing you want is for that boat to lee-bow you – that will force you to tack and you may end up sailing in bad air or the wrong way for the rest of the beat. Instead, wave them across your bow; even though you

have right of way, going behind them is a small price to ensure you are going the right way in clear air.

At the windward mark (*above*), don't tack exactly on the starboard-tack layline unless there aren't any boats between you and the mark. The cost of overstanding slightly is much less than the distance you could lose by getting caught in a mess at a crowded mark. Give up a little to avoid losing a lot.

**Keep two options.** Try not to sail yourself into a corner (literally or figuratively) where you have only one choice. For example, if you are thinking about cutting inside of a pack at the leeward mark, keep an escape route until you are sure there will be room for you. •



## STARTING

# How to get off the line in big fleets

Starting in a large fleet can be a challenge. With lots of boats fighting for position on a very long line, it's not easy to get the start you want. So your basic goal should simply be to come off the starting line with clear air going the way you want.

Unless you are a very good starter and willing to take some risk, forget the small-fleet tactic of going for the best start at the favored end. In fact, you might want to forget the favored end altogether. Here are some ideas on getting successful starts in a big fleet.

✓ **Avoid the crowds** – It's almost always better to start anywhere with clear air than at the favored end in the second or third row. Of course, if one end of the line is very favored you probably don't want to be all the way at the other end. But whenever you have to fight a crowd (which is the usual situation at either end of the line), it's easy to get tangled up and the odds of getting a good, clear-air start are low.

✓ **Respect line bias** – Big fleets have long starting lines, so even a little bit of bias (favor) means one end could have a huge advantage over the other. You don't necessarily want to start right at the 'favored' end, but always know which and is favored and by how much. Keep checking

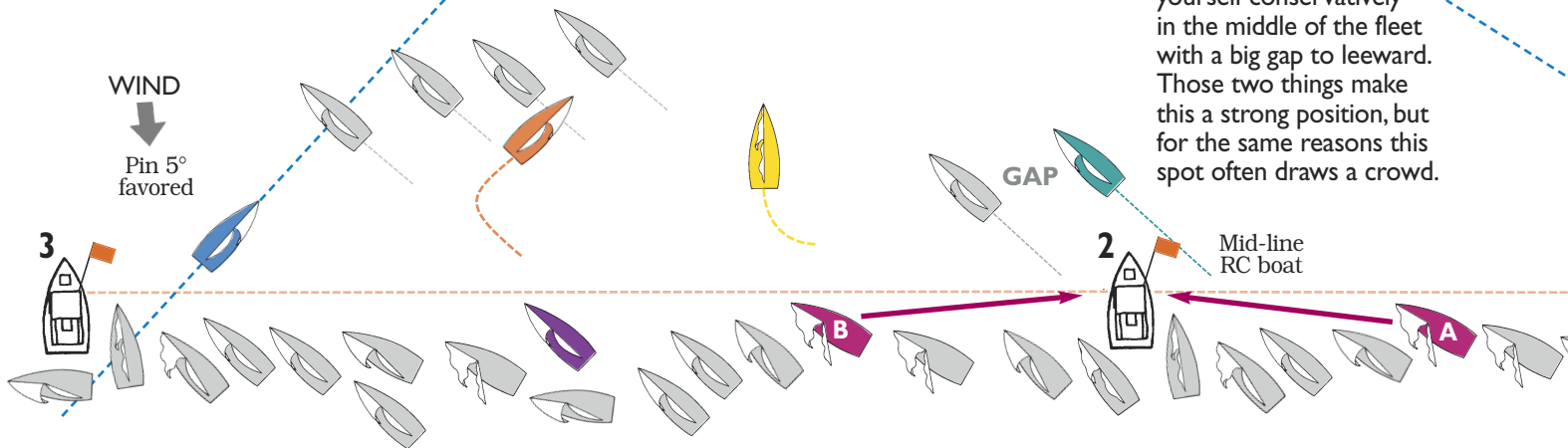
this before the start since the wind often shifts during the final 10 minutes, and it's easy to miss this when you're in the middle of a huge pack.

✓ **Use a line sight** – In a large fleet, the boats in the middle of the starting line are far from either end, so it's hard for them to judge where the line is. That's why there is often a sag (or bulge) in the middle of the line. If you want to start there (in big fleets the middle is often the easiest place to get clear air), you need a line sight. This is an invaluable tool when you have lots of boats and a long line. Try to get a sight from the pin end to an object on shore. If you have a line with three RC boats, use the mid-line boat and the far end.

✓ **Anticipate line sag** – The longer the starting line, the more likely it is that boats in the middle will be below the line at the gun. This sag will be accentuated when you have any of the following ►

**Orange** When the pin end is favored by 5° or less, be careful of starting too far down the line unless you are a good starter with above average speed. If you can't hold your lane on starboard and you need to tack to find clear air, you will end up going behind ALL the boats that started to your right.

**Green** Starting just to windward of the mid-line boat lets you position yourself conservatively in the middle of the fleet with a big gap to leeward. Those two things make this a strong position, but for the same reasons this spot often draws a crowd.



**Blue** Line bias is very important in a large fleet. The starting line at the J/24 Worlds was roughly 0.6 miles long (about 120 boatlengths)! If one end is favored by just 5° (the pin in this diagram), a boat starting there will be 12 boatlengths (10% of the lateral separation) ahead of a boat that starts at the other end. That is quite a large lead (or deficit) to have at the start of a race! A 10° line bias would mean an even greater differential – about 25 lengths from end to end!

**Purple** Don't start near the middle of the line unless you have a good line sight or some other way of knowing exactly where the line is. On a long line, problems locating the line will be greatest for boats that are farthest from a committee boat. For example, if current, waves, light air or big breeze push boats downwind, the sag will be greatest in the middle. The same is true when factors push the fleet upwind – the bulge is greatest in the middle.

**Maroon** When your starting line is defined by three committee boats, you have a built-in line sight no matter where you start on the line, even if you can't see a shore beyond either end. If you start on the windward half of the line (Boat A), you can find the line by using the range between RC boats 2 and 3. If you start on the leeward half (B) use the range between RC boats 1 and 2.

**Yellow** When you are not sure where to start, hang near the middle so you can decide as late as possible and still make it to either end. When you check the wind, do it to windward of the masses and on starboard tack so you have right of way.

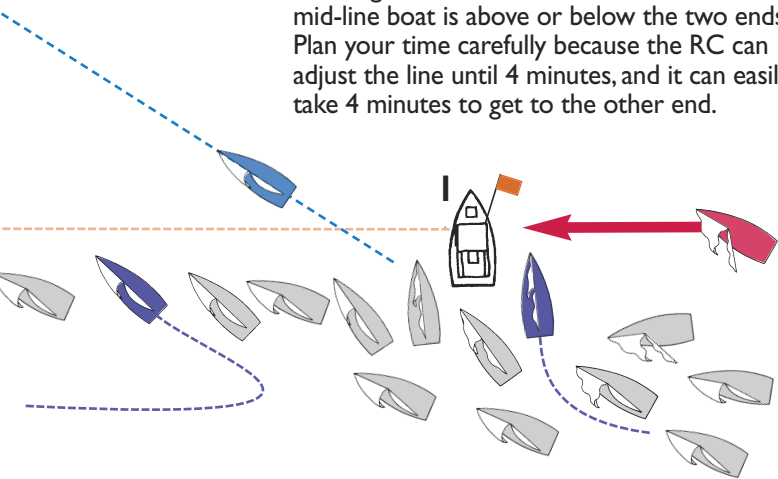




JH Peterson photo

**With 96 boats competing in the recent J/24 Worlds, the starting line was long and split in two by a mid-line race committee boat. You can see a couple of significant things here. First, the boats that are farthest from a committee boat have the hardest time knowing where the line is, which creates mid-line sag. Second, some places on the line are much more crowded than others; obviously it's much easier to get a good start when you are not in the middle of a pack.**

**Red** Some time before the start you have to look at the line from either end to see if there is a range or transit on shore and to see if the mid-line boat is above or below the two ends. Plan your time carefully because the RC can adjust the line until 4 minutes, and it can easily take 4 minutes to get to the other end.



**Navy** In a large fleet, certain parts of the starting line are always crowded. The committee boat at the windward end, for example, is usually surrounded by a mob. The odds of getting a good start there are quite small unless you happen to be a very skilled starter. The best strategy, therefore, is to avoid the crowds and start in lightly populated areas of the line. One approach is to sail below and parallel to the line on port tack, and look ahead to see where boats are concentrated on the line. Then tack into a spot where there are not so many boats. You can't do this too late or you may find a wall of boats with no openings.

conditions: big waves, strong wind, adverse current, light air, a lull as boats approach the start, a windshift to the left or a pin-favored line. If you have two or more of these conditions, you may find a significant line sag.

✓ *Start with a solid strategic plan* – Once you've started the race in a big fleet, it's difficult to go from one side of the course to the other because it's a long distance and there are usually so many boats in your way. Since you don't want to (or can't) switch sides, it's more critical to make (and follow) a good strategic plan in the first place. Get out to the course early and collect a lot of data so you increase the odds that you will start in the right place on the line.

✓ *Scope out the starting line* – To get a good start it's key to have a good understanding of the line. Obviously you need to know which end is farther upwind, and by how much. Remember the RC can move the line until four minutes; after that, of course, the wind may shift. If you have a three-boat line, is the mid-line boat exactly on a straight line between the ends? It's harder for the RC to move three boats, so watch out for a skewed line. Finally, it can take a long time to get from one end of the line to the other, so stay near the middle until you are sure where you want to start.

✓ *Prepare for recalls* – The bigger the fleet, the more likely you are to have general recalls. So make sure you get a good line sight, develop a consistent starting approach and don't poke your bow out in front of the line-up (unless you are sure you're not over). Know all the rules and procedures for general recalls, I flags, Z flags and black flags. When the RC uses the black flag, you can get a great start because it makes everyone else conservative (but you need a good line sight!).

✓ *Watch for starting signals* – In big fleets you are often far from the race committee and there is a lot of noise from other boats, so it's hard to hear and see the race committee signals. Because of this you have to be especially attentive to sounds and signals coming from the race committee boat. •



## GOOD ADVICE

# John Mollicone on big-fleet strategy

*John Mollicone recently finished 2nd in the 100-boat fleet at the J/24 Worlds in Rochester, NY. Here are his reflections on sailing fast and smart in a large fleet.*

### **DAVE: How did you and your team prepare for the J/24 Worlds?**

**JOHN:** My personal feeling is that any regatta starts long before you get there, so during the year before the Worlds we sailed as many big events as we could. We did most of those races with the same crew that sailed the Worlds, and we focused on boatspeed, boathandling and changing gears. In the end, the teams that had sailed together most definitely performed the best.

### **What was your overall strategy for the regatta?**

Usually the J/24 Worlds has about 60 boats, but in Rochester there were 100. The starting line was about six tenths of a mile long, and the first beats were two miles (*J/24 beats are normally 1.2 - 1.5 miles!*)

With such a big fleet plus a long starting line and course, our whole goal was to be conservative. That was the biggest part of our game

plan from day one – to reduce risk. We tried to avoid big scores and keep a low throwout.

In a fleet that big, being in decent position at the first windward mark was important, so our default starting plan was to start in the middle. This was the best way to avoid the disaster of being on the wrong side of some pretty unpredictable windshifts. By starting in the middle we never got to the windward mark in the top 10, but we always got there in the top 20 or 25, and we were able to chip away and pass 10 or 15 boats during the race. That's why we had a lot of finishes between 9th and 15th. Going into the last race our worst score was an 18th while everyone else had some big numbers.

### **Did you ever take more risk?**

We took some risk at certain times. When one end was very favored, or we felt confident about one side of the course, we started near an end. That's when we got our top-five finishes. But for most races we stuck with a consistently conservative approach, especially early in the regatta because in many of the

races we didn't know what would happen with the wind. Typically we started to windward or leeward of the mid-line boat and tried to let our boatspeed go to work for us and get in phase off the line.

A lot of teams took more risk than we did. For some this worked well for much of the regatta, but sooner or later it caught up with almost everyone – eventually they picked the wrong side of the first beat and ended up with races in the 40s and 50s. We knew one side would probably win out and if we started in the middle we wouldn't be in the top 10. But we also knew we wouldn't be 50th.

During most of the regatta we had a better throwout than anyone, but we were still sitting somewhere between 5th and 10th overall. We knew we had to take a little more risk late in the regatta if we wanted to get into the top three.

### **In a big fleet, were you worried about being stuck in the middle?**

We probably wouldn't have started in the middle so much if we didn't have such good boatspeed. We were pretty confident in our speed and

**John Mollicone** (*right, steering*) was a college All-American in 1998 and has been the head coach of the Brown University Sailing Team since 1999. During that time, John has coached 48 All-Americans, 15 Academic All-Americans and has led the Bears to 41 national championship appearances. In 2010, John was awarded the U.S. Sailing National Sportsmanship Award for the Van Alan Clark Trophy, and he won the J/24 World Championship in Malmo, Sweden. He was a member of the 2011 U.S. Sailing Team, winning a silver medal in J/24s at the 2011 Pan-American Games in Mexico.

At the 2012 J/24 Worlds, his team included Geoff Becker (trimmer), Tim Healy (tactician), Collin Leon (mast) and Gordon Borges (bow). They were 2nd overall (out of 100 boats) with scores of 13-17-18-4-15-9-14-2-9-(37).



JH Peterson photo

we were experienced at starting, so the middle was a good conservative approach, especially because the conditions were so unstable it was anyone's guess what would happen.

If I didn't feel fast or if we had too many mediocre finishes, I probably would have shifted closer to the ends. But a good thing about being in the middle was that we didn't get pinned out to a corner early in the race, and it was easier for us to stay in phase.

### **What are the biggest differences between racing in a big fleet vs. racing in a small fleet?**

In a smaller fleet you are able to manage the fleet more, and play more of a positioning game. In the bigger fleet with long courses and such a spread-out fleet, you had to manage your side of the course and try to win your side.

At times there were two or three different races going on around the course – the right side, left side and boats in the middle. If you were on the right, the boats on the left may have been a couple miles away, so if they had better pressure you were never going to get there. You could only worry about the wind and the boats in your area. We actually used small-fleet strategy to manage the group that was near us.

If you get ahead in a smaller fleet it's a lot easier to cover with your position. But in a bigger fleet that is difficult. In one of the last races we rounded the gate in first place, four lengths ahead of the next boat which went to the opposite gate mark. We would have tacked to stay with them but that was impossible with a wall of spinners coming downwind to the gate. So all you can do is commit to the gate mark you think is better.

### **What was your plan for starting?**

We always sighted the line from an end to see where the mid-line boat was positioned. Sometimes it was poked a little to windward, sometimes it was back a bit. You really had to do your recon before every start. We also took wind readings every couple of minutes.



JH Peterson photo

**“On runs, we tried to get away from other boats whenever we could, even if it meant sailing extra low for a bit or jibing away and then jibing back just to have more space. J/24s kick up a pretty big stern wake in breeze, so it's easy to get locked in another boat's wake. We tried to sail free, wind-wise and wave-wise, and avoid getting stuck in situations where we had to sail high. By doing this we gained a ton of boats downwind.”**

Our normal approach was to be in the middle of the line at five minutes. We'd hang upwind of the line so we could get clear wind readings and a good view of the course. At four minutes we made our decision about where to start – sometimes it took that long to get to either end. We tried not to be near an end at five minutes unless we were 100% sure that was the place to start.

It was hard to get a good line sight, so we had to rely on our bow person to know where the line was. Since we had good speed, we were a bit conservative about pushing the line. The Z flag was up a ton and we worked hard to avoid getting huge 20% penalties added to our score.

Most of the time we avoided the ends of the line because there were almost always 20 or 30 boats fighting for good starts there. We used a port-tack approach to look for areas in the middle of the line where there weren't so many boats. Our main goal was to find space – we didn't

care exactly where we started.

We usually started the races with our rig set up on the looser side. With so many boats, there was a good chance you would have to sail in choppy water and maybe bad air after the start, so you needed as much power as possible.

### **How late in the start sequence would you bail out of a crowd?**

I would say two minutes, or maybe a minute and a half. The problem is that once you start setting up you get locked into a spot and it's difficult to escape. At that point you just have to do your best at managing your position and watching out for snipers that are looking to fill your gap to leeward. Usually we would just try to 'own' our spot.

### **On the first beat, was it generally better to play the sides or middle?**

The wind was pretty random so there wasn't really a formula for doing well. If you could pick the ►

## Mollicone Interview

(Continued from page 11)

correct side then you would have a very good beat, but if you picked the wrong side you were buried. So we often picked the middle to be conservative and were usually able to round no worse than 20th.

The middle was the worst when it was lighter so in those conditions we were careful not to get stuck there. The wind filled in from the sides first and there seemed to be more pressure if you dug farther into a side. When the breeze was up the middle was better so we often tried to play the shifts there.

### What were your success secrets at the windward mark?

There were a lot of gains to be made by not getting to the starboard layline too early. We usually made a port-tack approach, but we were careful not to get to the starboard layline anywhere near the mark or zone. A couple times we gained almost 20 boats by avoiding the stack-up on the starboard layline!

After rounding the mark, our usual gameplan was to avoid jibing too soon after the mark because

there was so much bad air below the offset leg. But if we rounded the mark with a bunch of boats going high on starboard behind us, jibing was less painful than fighting high. The key thing was to make a plan before the windward mark, because with so many boats you had to set up your exit during the offset leg.

### What about the gate marks?

At the gate we had two goals. First, we tried to go to the gate mark that was less crowded and would therefore give us the better rounding. Second, we worked hard to hold our lane after rounding the gate mark.

There were so many boats coming downwind that you couldn't really tack, so you had to be good at setting yourself up for a rounding where you could hold your lane upwind after the mark. If you got stuck outside the pinwheel or in the bad air of the boat ahead, then you'd have to tack and you would be picking your way through spinakers with three knots less wind and two feet more chop.

### What were some common mistakes you saw sailors making?

On the starting line many people set up too early. As a result, they got close to the line too soon and were either over early or had to reach down the line. There is a fine line between getting to the line late enough to avoid this but not so late that you can't get into the line-up.

A lot of boats didn't do a great job of transitioning between puffs and lulls in the shifty breeze. You have to be good at changing gears upwind. In a large fleet you won't always have a good lane and clear breeze, so you have to adjust your setup to make the best of what you have. In the J/24 this means playing the backstay a lot and adjusting your genoa sheet a ton.

On the runs, the most common mistake was not maximizing velocity-made-good for the entire leg. Too many boats were content to sail too high for too long. You have to sail the best VMG you can right out of the box after the rounding and not get stuck in a reach-fest.

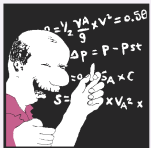
The leeward mark was another place where boats lost many points. A lot of sailors didn't seem to understand the power of having good roundings at the gate. They didn't work hard enough before the mark to set up a good rounding and then they couldn't hold a lane of clear air after the mark. Those are the four biggest errors I noticed.

### If you could sail the regatta all over again, what would you do differently, if anything?

If we wanted to win the regatta we would have had to take more risk. The Brazilian team (which won the Worlds by a lot) took a little more risk in the first half of the regatta. They made great choices and it paid off. Once they were leading the event they took fewer chances.

I think we were too conservative at the beginning – maybe we could have started slightly closer to the ends in some of those races and gotten more races in the top five. We did end up second overall so we are happy, but we also wanted to win. That would have required a bit more risk, so if we did that we might not have finished second! •

## TEASER ANSWER (From page 1)



Your helmsperson should normally sail the boat at the speed that gives your optimal upwind velocity-made-good, unless you (the tactician) tell him or her to sail faster or slower temporarily. Here are three times when, for tactical or strategic reasons, you might want to sail faster and lower, plus three times to sail higher and slower:

### Sail faster (and lower) than VMG when:

- You want to hold a lane on your current tack, and a boat to windward is threatening to roll over you.
- You're on a lift, sailing toward the next shift and/or better pressure
- You are trying to cover the boat(s) behind, and she/they have their bow(s) ahead on your current tack.

### Sail slower (and higher) than VMG when:

- You want to hold a lane on your current tack, and a boat to leeward is threatening to pinch you off.
- There is better pressure and/or a lift coming from your windward side, and you can get to it faster by pinching.
- You want to tack, but first you must pinch off a boat on your windward hip that is preventing you from tacking.



# Downwind tactics in a big fleet

When you're running or reaching in a big fleet, your primary goal should be very similar to what it is when you are beating. The number one priority is getting away from other boats so you can sail in clear air and undisturbed water and avoid getting pushed where you don't want to go (see page 15).

Whenever you sail at full speed, you will be gaining on all the other boats that are sitting in bad air. If you can also play the shifts and sail in good pressure, you should be in great shape when you get to the leeward mark. Here are some specific strategic and tactical ideas you can use for downwind legs.

### Priorities for runs and reaches

On shorter courses with fewer boats downwind legs often don't have too many place changes. But in big fleets lots of stuff happens, so don't stop pushing when you round the windward mark.

Aggressively seek clear air. Watch your masthead fly and the boats behind to keep a lane of clear air. Sailing in bad air is like sitting in a lull – all the other boats will be going faster. It's easier to clear your air downwind than upwind for two reasons: 1) jibing is less costly than tacking, so it's easy to do two quick jibes to get out of a wind shadow; and 2) you have a wider groove

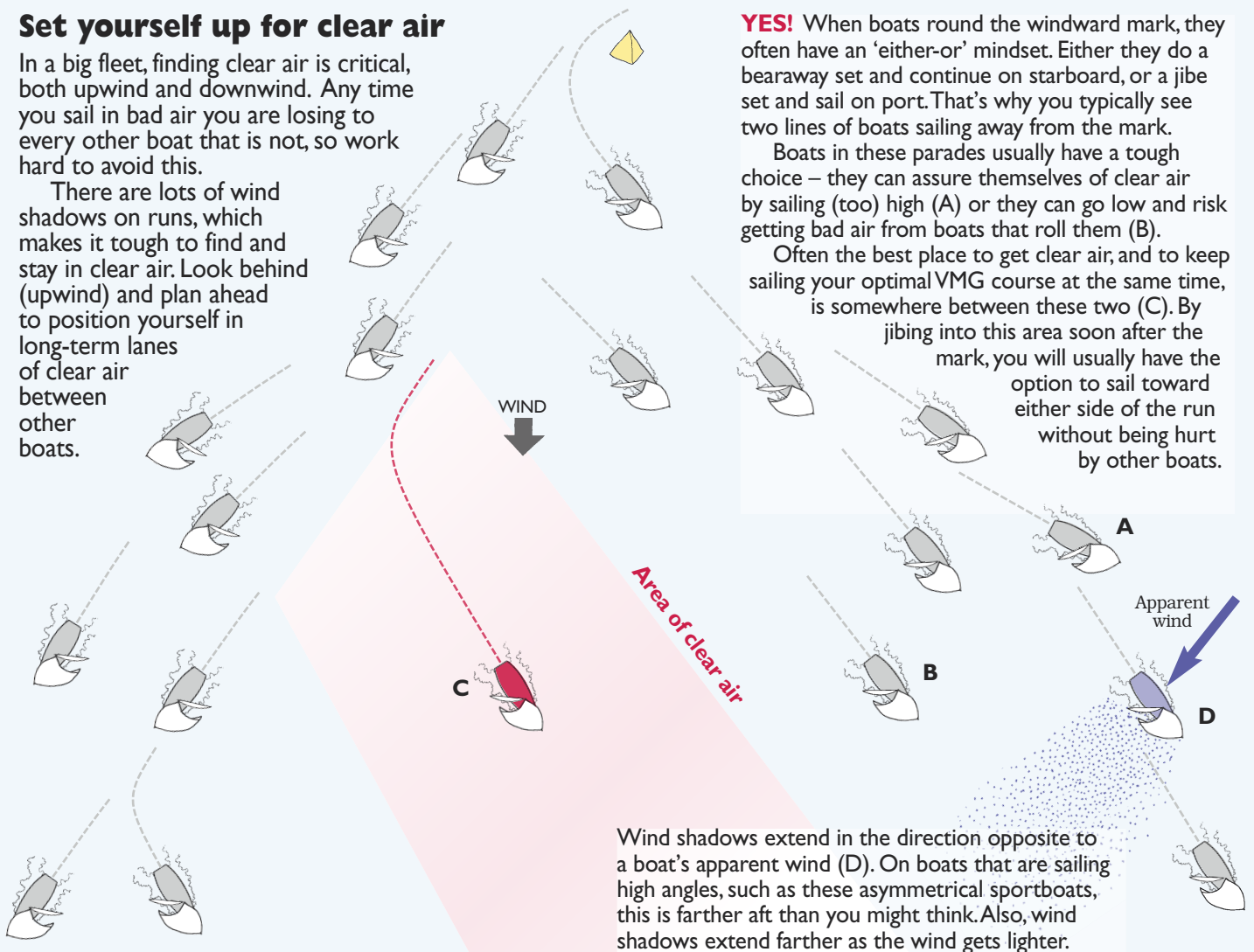
downwind so you can clear your air by heading up to a broad reach or bearing off by the lee.

Look behind! Assign one of your teammates to watch the boats and wind behind you during the run. Often this is the forward crew (or bow person) since he or she spends a lot of time looking back at the rest of the crew anyway. This is especially important in large fleets because of all the boats behind you. It's critical to watch their position so you can keep your air clear. Also, changes in the wind will show up first on those boats – since the wind can change a lot on long runs it's key to keep a lookout aft. ▶

### Set yourself up for clear air

In a big fleet, finding clear air is critical, both upwind and downwind. Any time you sail in bad air you are losing to every other boat that is not, so work hard to avoid this.

There are lots of wind shadows on runs, which makes it tough to find and stay in clear air. Look behind (upwind) and plan ahead to position yourself in long-term lanes of clear air between other boats.



## Downwind Tactics

(Continued from page 13)

### • Keep away from laylines.

On a run, the laylines are almost as bad a place to be as on a beat. But it's easier to overstand on the run (because jibing angles are narrow to begin with and are affected greatly by small changes in wind pressure), so be careful. The longer the leg, the greater the risk because you are more likely to get a shift or puff that will move your laylines.

Unless you have a very strong reason, stay well inside the laylines to the leeward mark (or the gate marks). This will allow you to keep playing the shifts and will avoid wasting distance by overstanding.

• *Have a gameplan.* When you're racing in the middle of so many boats, it's easy to get distracted and sidetracked. That's why

you always need a working strategy (a game plan for how you'd ideally sail the course in the absence of all the other boats). This provides a framework, or purpose, for all the boat-on-boat tactical moves that you will make during the run.

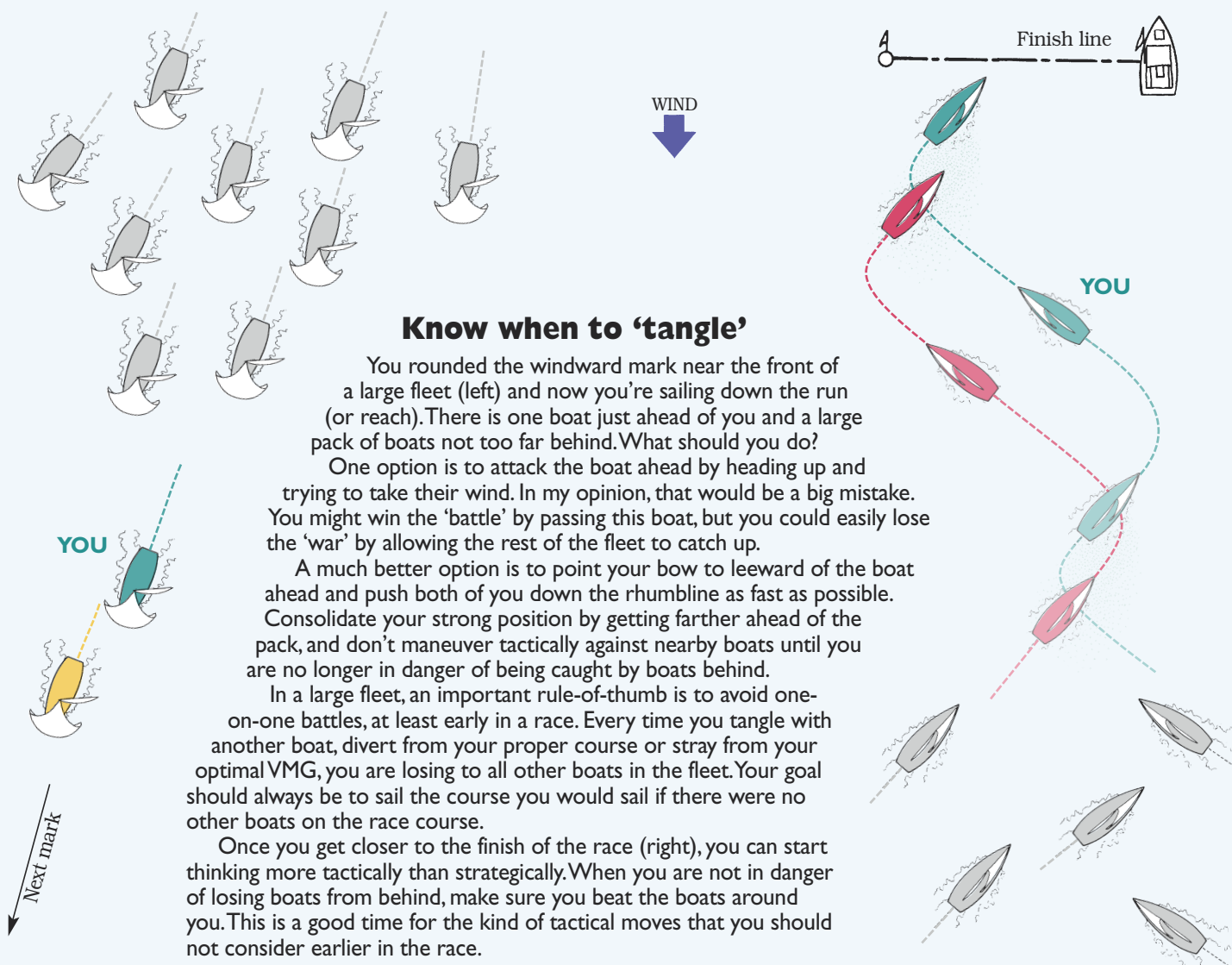
Your plan doesn't have to be complex. For example, when the wind direction is oscillating you might decide simply to stay on the longer jibe to the next mark. Or if puffs and lulls are the predominant wind characteristic, you might try to stay in the best pressure. In either case, your strategy will tell you how to interact with other boats.

• *Sail your best VMG!* One of the biggest mistakes that sailors make on runs is not sailing as fast as possible downwind. I often see boats willing to sail high for way too long. Any time you are not sailing

your optimal velocity-made-good toward the leeward mark you are losing to most of the fleet. If you are sailing high to keep your air clear, for example, consider jibing instead.

• *Be smart at the leeward mark.* The 'destination' for your run is the leeward mark or gate, so make your final approach with a good rounding in mind. In a large fleet, you can gain (or lose) lots of boats here.

The most important thing is to round the mark close enough that you can touch it. You should almost never round a mark on the outside of other boats (especially when there are a lot more boats behind you). Instead, work your way to the inside well before you hit the zone. If you find yourself on the outside of a pack as you near the mark, slow down so you can round right



behind them. This is one time where slower is usually faster.

• **Reach toward the next mark.** In large fleets, the rich usually get richer on reaching legs. That's because each successive boat heads up a little higher to avoid getting rolled from behind. With the pack sailing a windward arc, the leaders are able to sail a lower, straighter course and extend their lead. For this reason it's usually best to stay as close to the rhumbline as possible so you sail the shortest distance between marks.

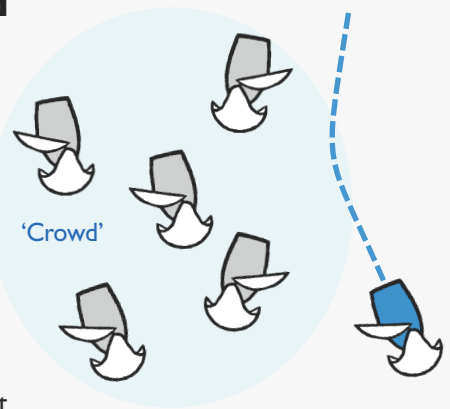
Racing downwind (or upwind) in a big fleet requires many of the same skills as sailing in a smaller fleet. In a big fleet, however, you normally have a smaller margin for error. It's not as easy to recover, so be more conservative. •

## Get away from the crowd

On a run in a big fleet there are usually packs of boats everywhere. It almost seems that boats gravitate toward each other, but this doesn't make sense. A boat that is sailing by itself will almost always go faster than any boat sailing in a crowd.

When you're in the middle of a bunch of boats, it's hard to go fast because you are affected by their bad air and disturbed water. In addition, the presence of other boats nearby makes it harder to go where you want to play shifts and puffs.

A boat that is sailing by itself has none of these problems. Therefore, it almost always makes sense to get away from the crowd. Look upwind and plan ahead so you are in lanes of clear air by yourself. If you see you're approaching a clump, jibe away. Jibing



doesn't cost very much in most boats and wind conditions, so it's easy to get (or stay) away from your competitors.

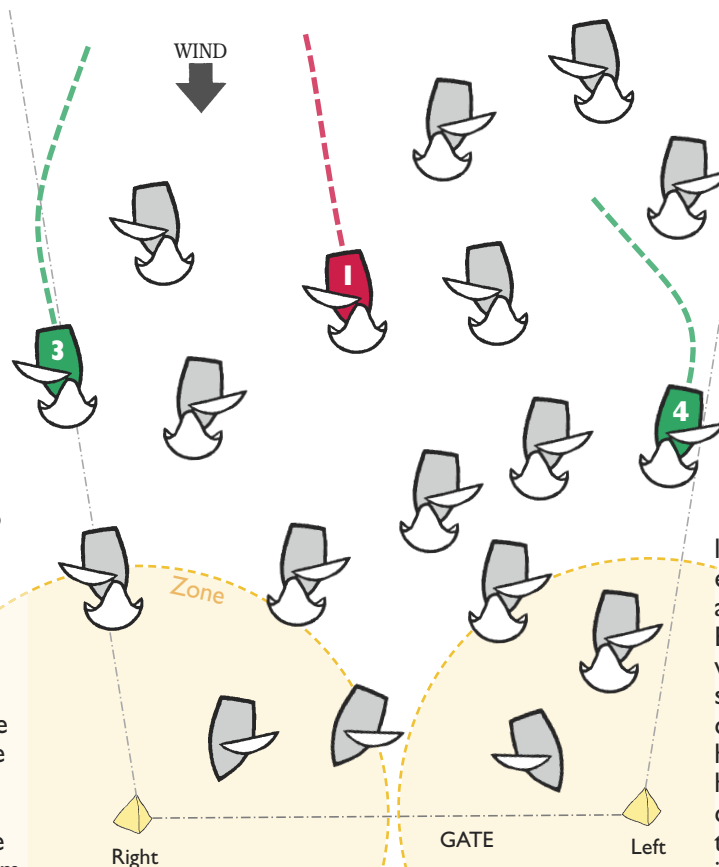
Of course, you can't always ignore strategy in favor of tactics. Often it's better to go the right way in a pack than the wrong way by yourself – you just have to prioritize constantly.

## Round on the inside at the gate (or leeward mark)

In a big fleet, there is a lot to be gained or lost at the end of runs. One of the worst things you can do in most situations is to round a mark on the outside of one or more other boats. This puts you in bad air without the option to tack, which is a terrible way to start the next beat. Therefore, always try to round the mark close enough so you can touch it, even if this means you must slow down and round behind boats that are ahead (or inside) of you.

**1 NO!** In theory, staying in the middle as you approach the gate is a good idea because it allows you to delay your choice of gate marks as long as possible. This works well in small fleets. But in big fleets, unless you are near the front, it's hard to get to the inside at either gate mark from this position. Often you will end up rounding on the outside of the pinwheel.

**3 YES!** It's usually better to have a good rounding at the unfavored gate mark than a bad rounding at the favored gate mark. If the right-hand gate mark is your better option, approach it on port jibe so you will be on the inside. The disadvantage is that you have to keep clear of converging starboard tackers, but once you get to the zone you'll be on the inside with mark-room.



Layline

**2 NO!** Don't go to the layline too early! Once you get here you lose the option to round the other gate mark (since you are overstanding it by a lot and there are many boats between you and that mark). Plus you lose the ability to jibe on windshifts. In a large fleet, other boats will probably jibe on your wind, which means you will have to sail a long way in bad air or do two jibes to stay in clear (but overstand the mark).

**4 YES!** If you like the left gate mark, set up so you will be inside at that mark. Get to the starboard layline late enough so you avoid the problems of being on the layline too soon (above), but early enough so you make your final approach from outside the zone. By approaching on starboard jibe with no boats to leeward, you should be able to round the mark close enough to touch it. You may have to slow down to round behind boats that entered the zone clear ahead, but you will be able to make a proper course rounding because you have right of way.

**NEXT ISSUE: Changes in the new 2013-2016 Racing Rules!****CHECKLIST****Adjust your gameplan to fleet size**

You can't approach a 60-boat fleet the same way you'd tackle a 20-boat fleet. The presence of many more boats on the course makes your racing qualitatively different and requires a unique approach.

Consider the starting line. In a small fleet you can get room to start almost anywhere, it's easy to locate the line, and if you have a bad start it's not hard to find clear air.

But in a big fleet all these things are different. The line is almost always crowded, especially at the ends, and it's so long that you have a hard time finding the middle. If you don't have a good start, it could take forever to get clear air.

Before every regatta, think about how many boats there will be and how this number may affect your strategy and tactics. Here are a few ideas.

**LARGE FLEET**

**Long starting line.** Line bias will matter much more. Really need a line sight to know where middle of line is. Tough to start at one end and cross to other side of course.

**Crowded starting line.** Tough to find a clear space to start. Will be crowds of boats, especially near the ends. Better chance that boats will mess up your start.

**Hard to find clear air.** Difficult to find clear air upwind unless you are in front row. Clear air may be more key than going the right way so value your lane of clear air. Often better pressure on sides of fleet.

**Long beats and runs.** Boats will be very far apart with lots of leverage in the middle of the leg. Windshifts produce huge gains and losses. Hard to change sides.

**Groups of boats are important.** Early in a race don't worry about single boats. Look to get and stay ahead of groups of boats. Beat individual boats at the finish.

**Consistent scores win regattas.** Don't try to win the race because that requires too much risk. Aim to be consistently in the top group and avoid disasters.

**SMALL FLEET**

**Short starting line.** Easier to judge the location of line. Can switch ends later in sequence. Less penalty for starting closer to 'unfavored' end.

**Less crowded starting line.** Not as risky to go for a good start at the 'favored' end. You can protect a bigger hole to leeward on the line. Don't need to set up so early.

**Easy to get clear air.** Finding a lane of clear air is not hard, so go the right way and be sure your wind is not affected by other boats. Don't linger in bad air or a marginal lane; tack.

**Short beats and runs.** Possible to switch sides if your side is not working. Easier to stay in touch with rest of fleet. Won't see as many shifts as you will on longer legs.

**Each boat is important.** Every point is more valuable, so place more importance on catching and covering single boats.

**Low scores win regattas.** Winning races (or being in the top 3) is a goal that is achievable without too much risk.