Your strategic planning for the downwind legs should begin long before you get to the windward mark. During your pre-start preparation, review all the downwind legs. What will be the compass course and angle of sail on each? What sails will you probably use? What wind shifts, wave effects or current conditions do you expect?

Before your warning gun, do everything possible to prepare for going downwind. Pack the spinnaker, attach the sheets and halyard, set the topping lift height for the wind velocity and, if possible, sail the compass course for each downwind leg to get a feel for wind angle and velocity. Your object is to minimize the number of things you have to do as you approach the first mark.

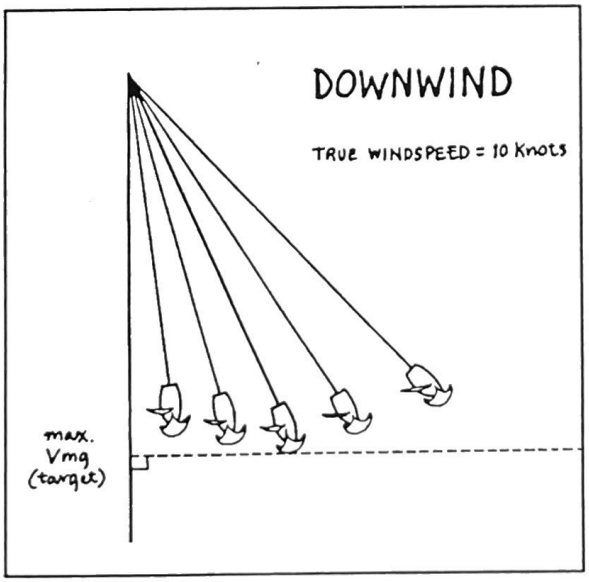
Before you reach the windward mark, have a crewmember look for the next mark. Then review your strategic plan for the upcoming leg. You will have learned a lot about the wind and current from the preceding beat, so update your downwind strategy with this info. Your goal is to have a good working strategy before you get to the mark, but don't be afraid to modify this as you learn more.

General principles for runs

From a strategic point of view, runs are a lot like beats. Whether you are tacking toward a windward mark or jibing toward a leeward mark, you should follow very similar principles:

Maximize VMG The first element of your strategy should be to make sure you are sailing downwind as quickly as possible. The fastest angle of sail will be a function of windspeed (Figure 1). In almost all conditions, heading straight for the mark on a dead run is slow. It's better to sail some version of a broad reach.

The implication of this is that the fastest way to get to a leeward mark is to "tack downwind" (Figure 2). In heavy air, you may be able to sail very close to the rhumbline. In light air, however, or



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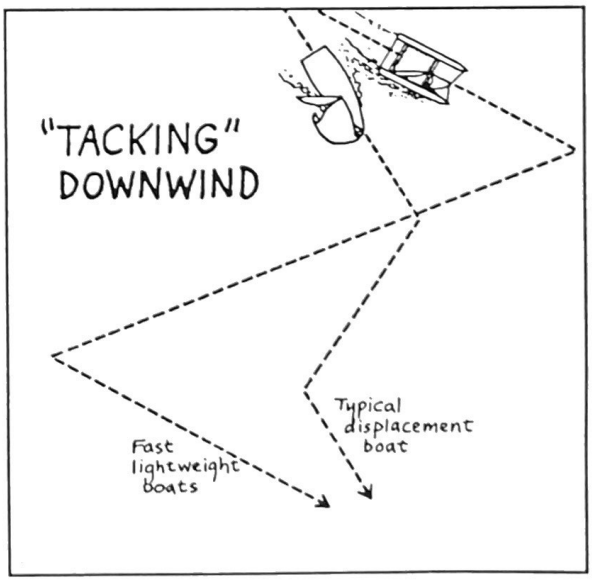

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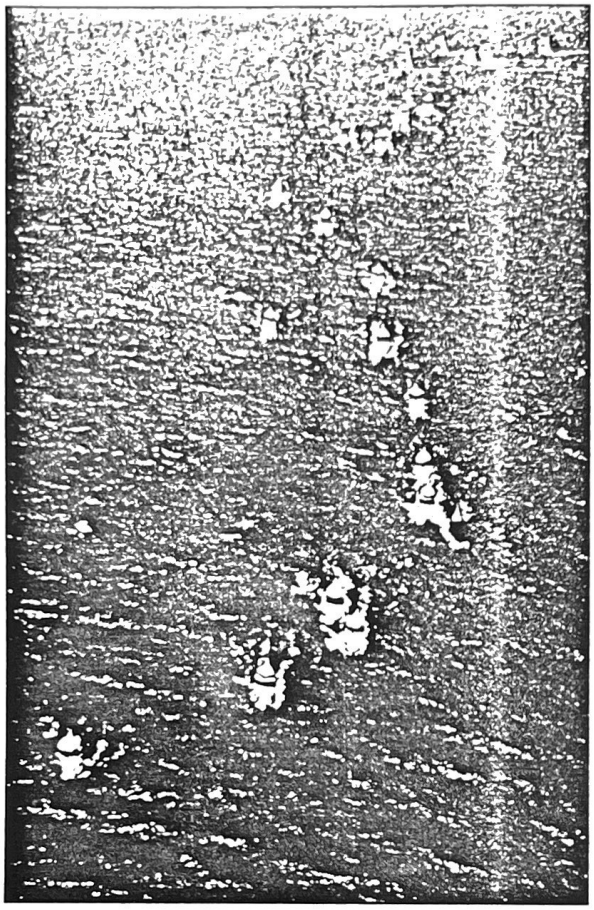
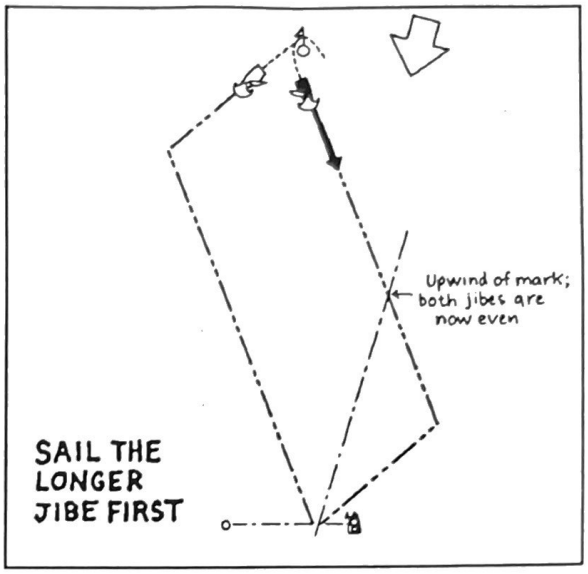


Your strategy for downwind legs should be quite similar to beats. When you're not sure which side of the run is favored, sail the longer jibe first, avoiding corners and laylines. On reaches, minimize distance sailed by sticking close to the rhumbline when possible.



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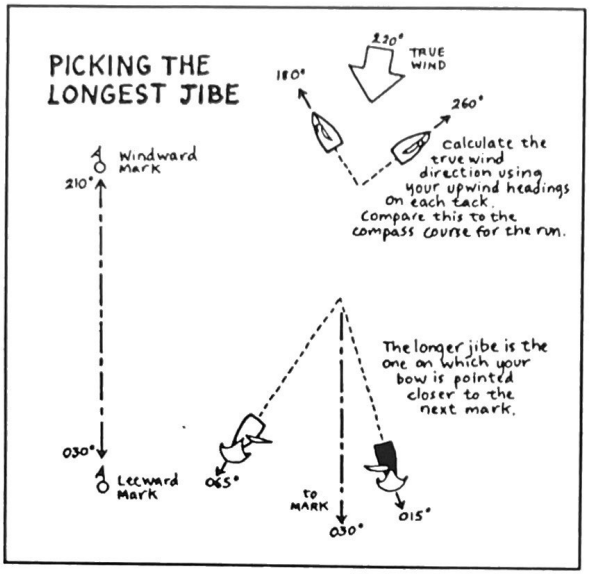
in boats like catamarans or planing dinghies, your optimal jibing angle will be very wide, and you want to sail a much longer course than the rhumbline.

Sail the longer jibe first When sailing beats, the basic rule of thumb is to sail the longer tack. On runs, you should generally stick to the longer jibe (Figure 3). On almost all runs, one jibe is longer than the other. Even if a run is perfectly square, as soon as you sail away from the rhumbline, one jibe will become longer.

There are several reasons to sail the longer jibe. First, it maximizes your velocity made good toward the next mark. Second, it keeps you away from laylines as long as possible. And third, it puts you in the best position to take advantage of future windshifts. This is a good conservative strategy when neither side of the course is obviously favored.

How do you know which jibe is longer? There is one fail-safe guide: stay on the jibe where your bow is pointed closer to the mark. This is easy when you're already on the run, but what can you do if you're approaching the windward mark and you want to know whether you should do a bearaway set or a jibe set?

One easy rule of thumb goes as follows: If you sailed longer on starboard tack during the beat, start the run on port tack (and vice versa). For better ac-



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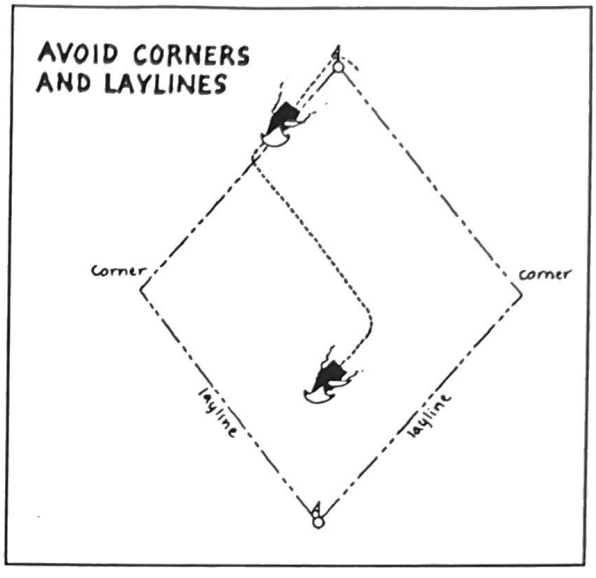

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curacy, figure out the true wind direction from your instruments, or by averaging port and starboard tack readings. Then compare this to the compass course of the run (the reciprocal of the beat) to choose the longer jibe (Figure 4).

Avoid the laylines and corners The laylines and corners are no better places to be on a run than they are on a beat (Figure 5). Once you get to a layline, you lose any chance of taking advantage of windshifts. If the wind shifts at all, you will lose to most other boats.

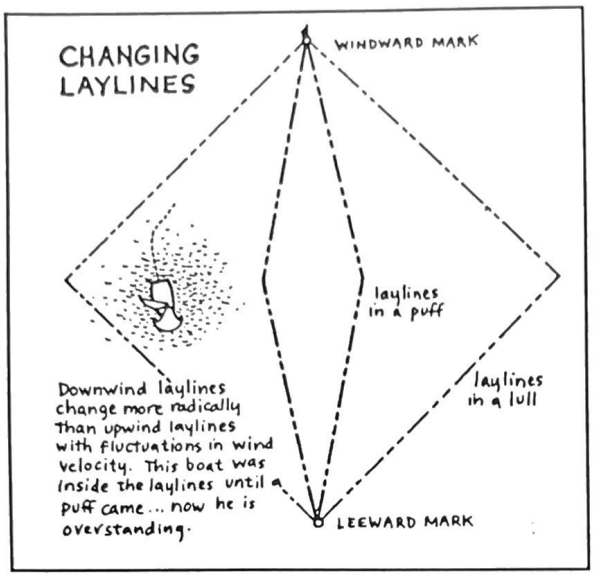
The other danger of getting near downwind laylines is that you may lose if the wind increases. Downwind, small changes in wind velocity can have a dramatic effect on your jibing angle. So stay in the middle of the course as much as possible. The farther you get from the rhumbline, the more you risk overstanding if you get an increase in wind velocity (Figure 6).

Playing windshifts

The similarities between beats and runs become very evident when you consider windshift strategy. One of the big differences between upwind and downwind strategy is that jibing is less costly than tacking. This means you can react to even smaller wind changes when running, which makes your strategy more interesting.

One thing to realize is that shift detection is usually more difficult off the wind, due to several factors. First, the downwind groove is much less defined than the upwind groove, so you won't automatically see shifts on your sails. Second, when sailing downwind, it is more difficult to watch the wind coming on the water (because the wind that's approaching is behind you).

Finally, the interrelationship between apparent wind angle, boatspeed and the angle of the true wind makes



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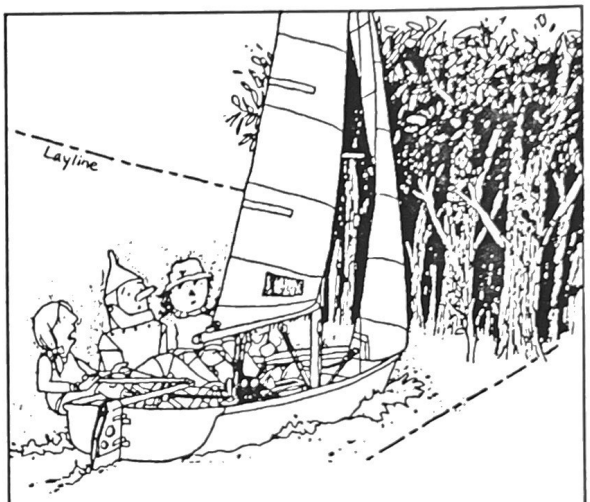
shift detection difficult. For instance, if you have to head up to maintain speed, it could be the result of a shift in the true wind direction (a lift) or simply a decrease in wind velocity.

Because of all these factors, you must pay special attention to the wind when you are running. Maintain a constant dialogue between the chute trimmer, helmsman and tactician to monitor shifts and gusts. And keep an eye on the boats behind you. One advantage they have on a run is they will get the puffs and shifts first. So use them as giant telltales.

Puffs and lulls Your object on the run is to stay in the areas of most wind velocity (Figure 8). Sometimes you have to sail a higher angle, or jibe, to get to more breeze as soon as possible. With better velocity, you will be able to sail faster and lower—an unbeatable combination. Often the biggest gains and losses downwind are due to differences in wind speed across the course, not to shifts. Therefore, try to avoid lulls and sail for puffs.

Keeping track of wind velocity is more difficult on runs than beats, largely because you are going with the breeze, so the apparent wind you feel is quite light. It's especially important, therefore, to watch the water to see what kind of velocity you will be getting.



Stay out of the woods.

One of the most basic principles of upwind or downwind sailing is to avoid the "corners" of the course whenever possible. When you find yourself heading for a layline, look for any excuse (e.g. a small windshift or a lane of clear air) to tack or jibe. By staying near the middle of beats and runs, you maintain the option to play windshifts to your advantage. In general, stay on the longer tack to the mark – the one where your bow is pointed closer to the mark. This will keep you out of the forest at the edges of the course.

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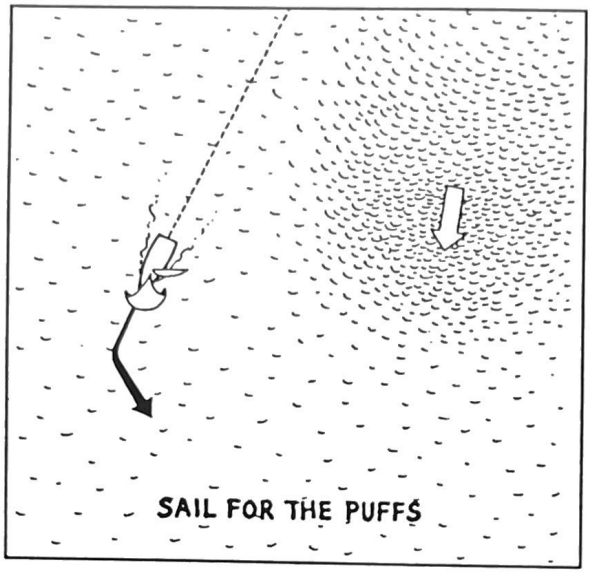

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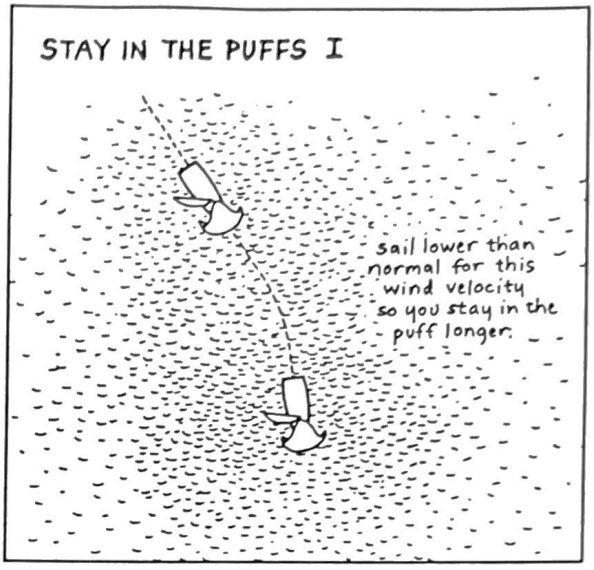

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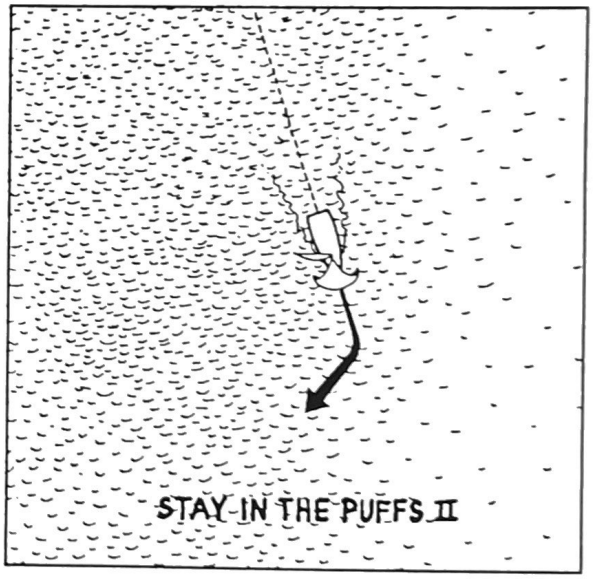
When you do get a puff, sail as low as possible – even lower than you might normally sail for that wind velocity (Figure 9). This will put your course more directly in line with the direction the puff is traveling, and you will therefore stay in the puff longer.

If you see yourself sailing out of a puff, jibe back into it (Figure 10). In general, sail higher in the lulls (to maintain speed and get to the next puff sooner) and lower in the puffs (to carry your speed toward the mark and stay in the puff longer).



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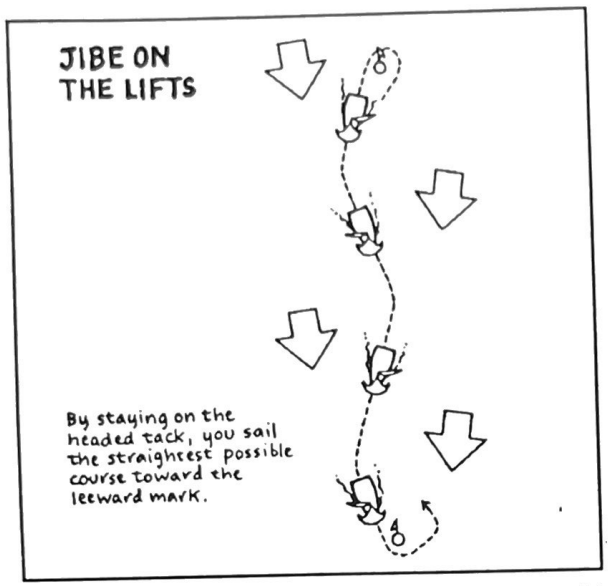
Oscillating shifts When you're sailing upwind in a shifty breeze, you should tack on the headers so you sail on the *lifted* tack; downwind you should jibe on the lifts so you stay on the *headed* tack (Figure 11). The reason for this is simple. On a run you want to maintain speed and head as close to the mark as possible; you can best accomplish both goals by sailing on headers.

Try to get on the headed tack as soon as you begin the run. If the last shift on the beat is a starboard lift, then you should do a jibe-set so you are on the port header. Conversely, if you come into the mark on a port lift, then do a bear-away set so you stay on the starboard header. This strategy of sailing *away from* the



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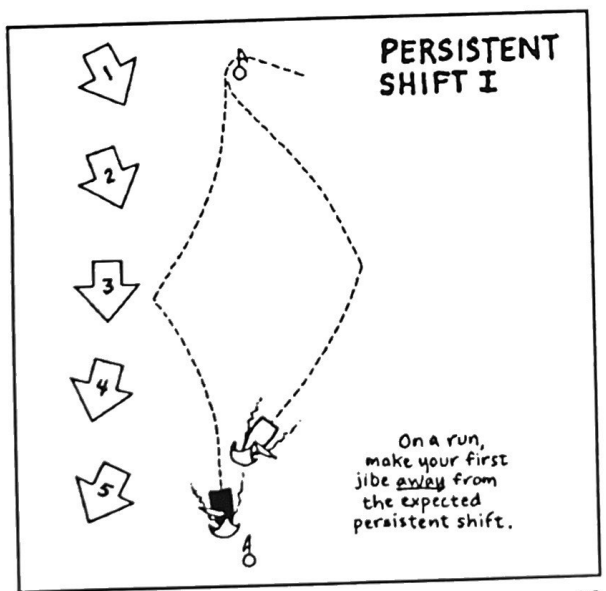
next oscillation is a little different than upwind, where you always want to sail *toward* the next expected shift.

Once you are "in phase" with the shifts, jibe when you get a lift. You'll recognize a lift because the spinnaker trimmer will have to square the pole and/or the helmsperson will have to head up to maintain speed.

Persistent shifts When you have a steadily shifting breeze, your downwind strategy is basically opposite what you'd do upwind. On a beat, you should sail *toward* the expected shift. On a run, however, make your first jibe *away from* the expected shift. This will bring you out ahead of the boats that sail toward the shift (Figure 12). Be sure you jibe before the layline, however, so you won't overstand if the wind keeps shifting.

The only time when you should consider sailing toward a persistent shift is when you expect a significant increase in velocity (Figure 13). If you sail toward this new wind, you will get the velocity first, and this may more than offset any effects of the change in direction.

Velocity shifts Velocity shifts on a run are very similar to velocity shifts on a beat; a lull will appear like a header and a puff looks like a lift. While you never want to treat a velocity shift like a "real" shift, at least the consequences of



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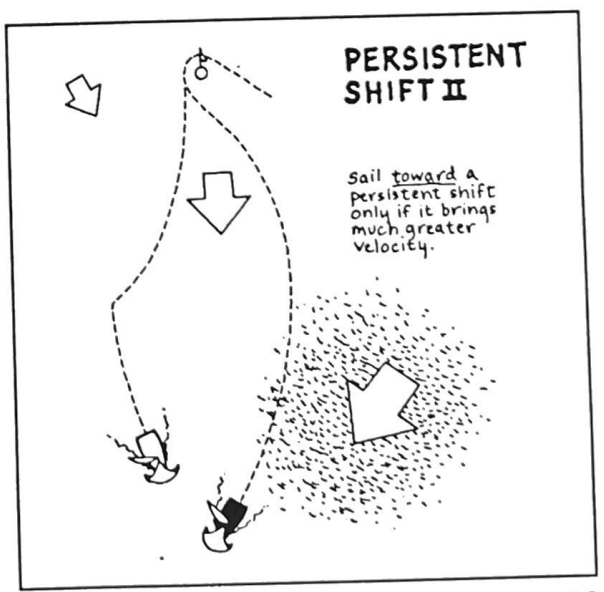

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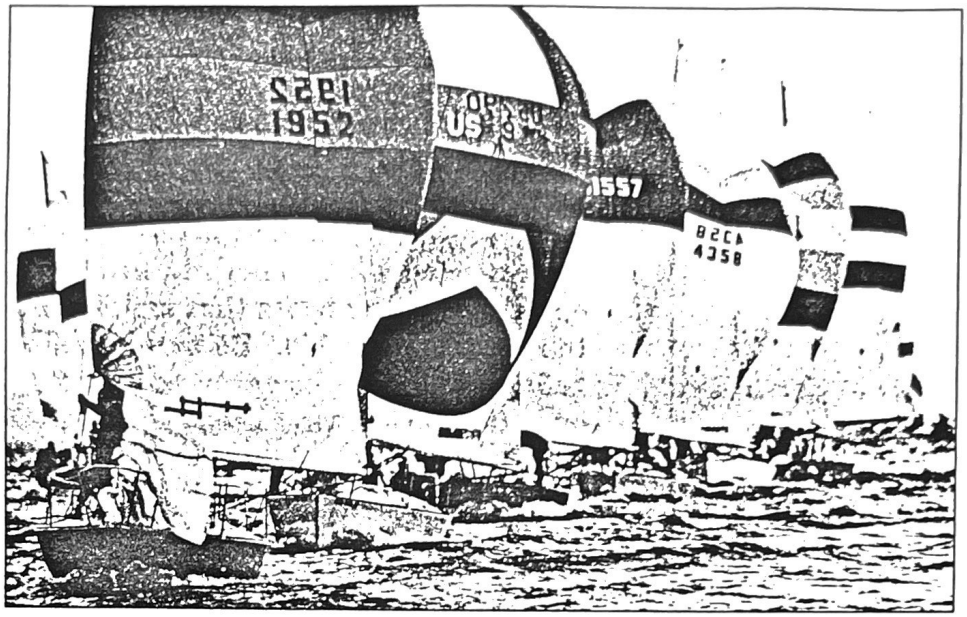


Reaches are often parades where few position changes take place. Therefore, your strategic goal is usually to sail as fast as possible down the rhumbline so you can close distance on boats ahead and open up distance on boats behind.

being fooled by a velocity shift are not as severe on a run. There are two reasons for this: 1) jibing is not as costly and 2) if you get fooled into jibing on a "velocity" lift, at least you will be in a puff (whereas on a beat you'd tack in a "velocity" header, or lull, which is slow).

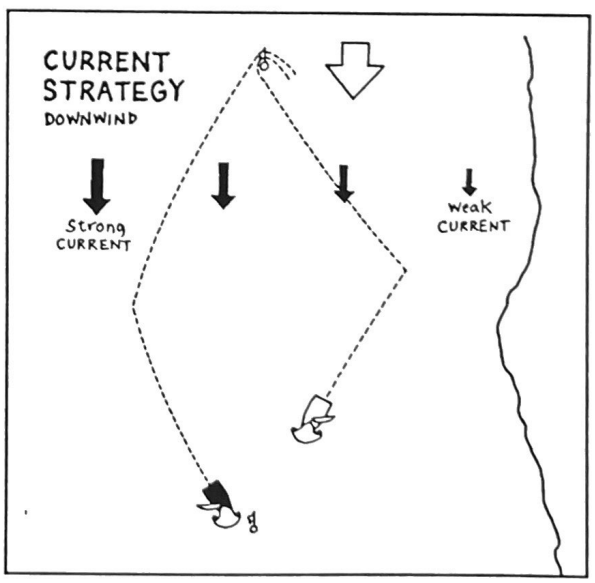
Current

We will get more into current in the next chapter. You should just be aware that current may play a large part in any strategy, upwind or downwind. On a run, you want to sail where the current is strongest with you (Figure 14) or weakest against you. Remember that current changes your laylines to the leeward mark, and a favorable current will bring you into the leeward mark rounding much sooner than you think.

Reaches

Reaches are quite different from runs or beats, and they require their own particular strategy. You might think it's relatively simple to reach from one mark to the next, but reaches are actually filled with subtleties that make any leg an exciting challenge.

Go fast Reaches aren't generally known for big gains and losses. When planing or surfing conditions exist,



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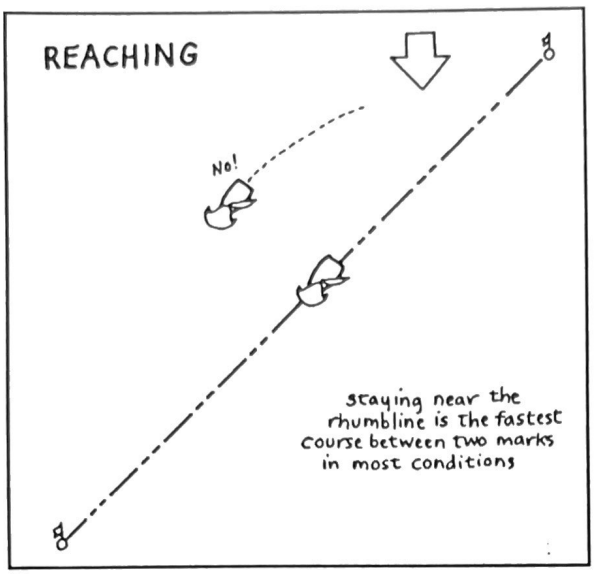

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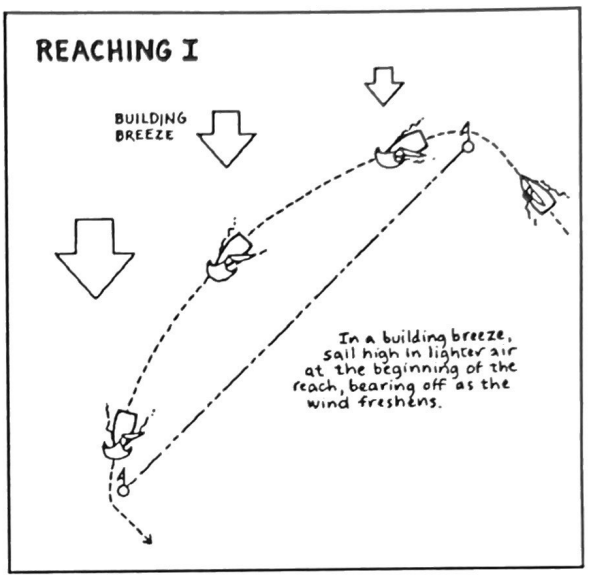
however, there is potential for large variations in boatspeed. The key here is to get going and settled into a groove as soon as possible. When it's blowing 20, don't worry about easing the cunningham or outhaul when you come around the windward mark. Just set the chute and get your weight out and aft. You can worry about less important details later, when you get a lull.

Sail the rhumbline The shortest (and usually the fastest) course between any two marks is a straight line, known as the rhumbline. Whenever possible, stick close to the rhumbline so you won't sail extra distance (Figure 15).

Since most reaches are follow-the-leader affairs, the object is to close distance on the boats ahead (this is usually more important than passing boats). If you sail high, you will lose distance that could be hard to make up later.

There are certain times, however, when the fastest route to the next mark may not be a straight line:

Building and dying breezes When the wind is gradually changing velocity, sail low when you have good velocity and higher when the wind is light. In a building breeze, for example, sail high at the beginning while you have relatively light air (Figure 16) and bear off with greater velocity toward the end of the



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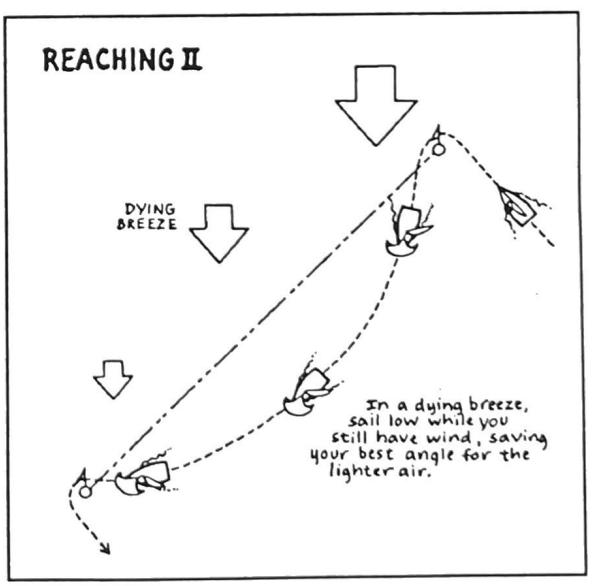

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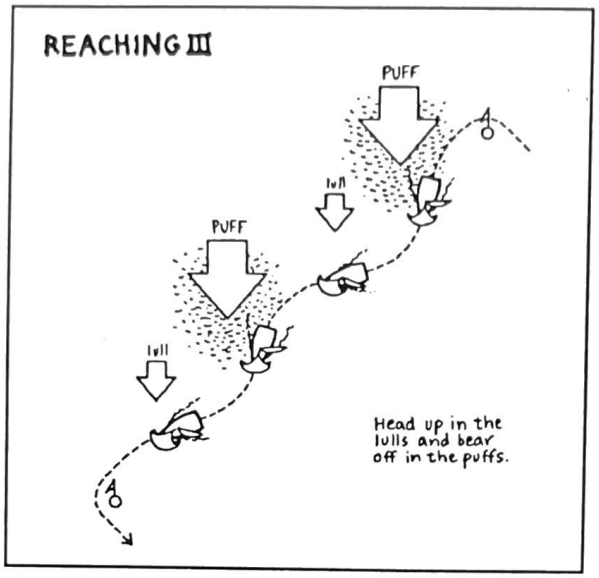

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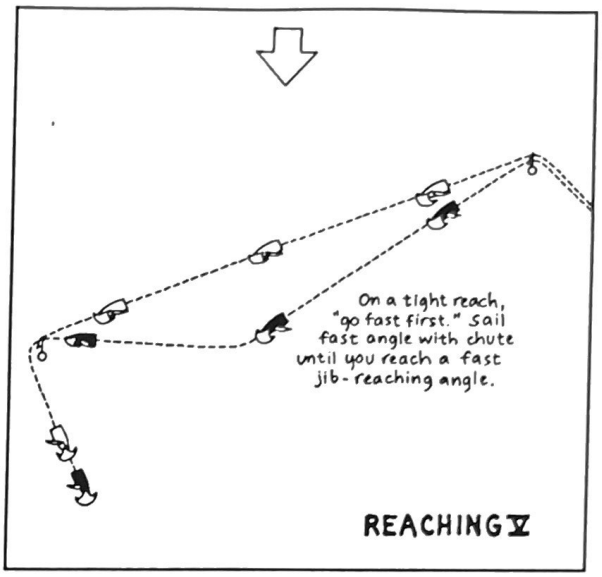

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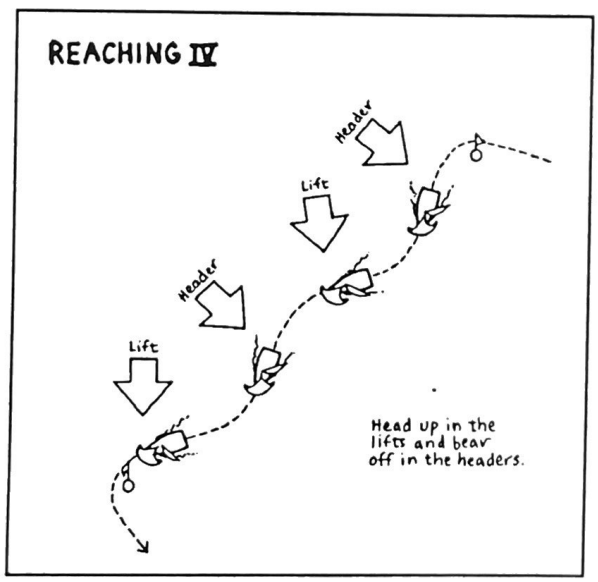

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leg. In a dying breeze, go low early and come up fast at the end (Figure 17).

Persistent shift You should treat persistent shifts a lot like building or dying breezes. In a persistent header, go high first and low later. In a persistent lift, go low first and then higher later.

Puffy wind When you have puffs and lulls, the ideal reaching course will look like a snake. You should head up in the lulls to maintain your speed, and bear off in the puffs so you don't get too far above the rhumbline (Figure 18). These strategies have additional benefits as well. By bearing off in the puffs, you stay in the better breeze longer; heading up in the lulls gets you to the next puff sooner.

Oscillating shifts The snake course also works well for oscillating breezes. When the wind is shifting, try to maintain a consistent apparent wind angle by heading up in the lifts and off in the headers (Figure 19).

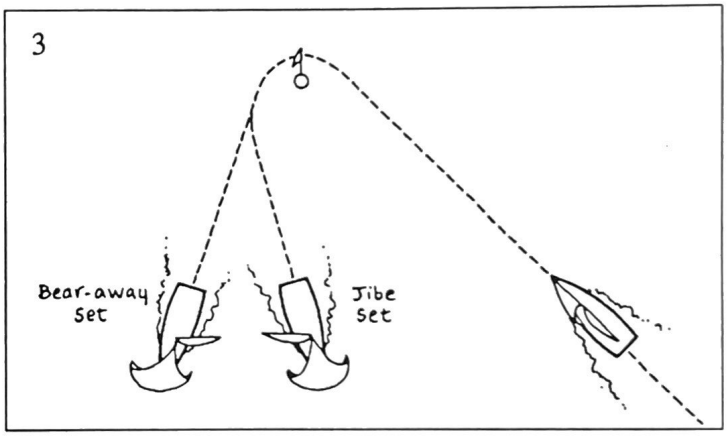
Tight reach If the reach is very tight and it's difficult to hold your chute on the rhumbline, bear off until it's easier to fly the chute. In situations like this, the general rule of thumb is "go fast first." Sail fast with your chute under control and, if necessary, you can always drop the chute later in the leg and head up to a fast jib-reaching angle (Figure 20).

Problems

1. When sailing a dead run, tacking downwind is usually the fastest way to go. How do you know which wind angle is your fastest point of sail?

2. You are getting close to the windward mark in a breezy northwester and you're preparing for the run, which is almost dead downwind. Your final approach to the mark is made in a starboard-tack lift. What should you do after you round the mark? Why?

3. You are racing a windward-leeward course in a breeze that seems very steady. You're doing quite well as you approach the windward mark, and you decide to play the run very conservatively by sailing the longer jibe first. You've figured out that the course to the leeward mark is 035 degrees. On the beat, your median headings have been 250 on port tack and 168 on starboard. Which jibe is favored?



4. The rhumbline is the shortest distance between two marks. On a reach, it's often fastest to sail right down the rhumbline. Name two times when the best strategy is not to stay right on the rhumbline.

5. You're about to round the windward mark and sail a two-mile run. As you get closer to the mark, you review your downwind strategy with your crew. You point out that the strong seabreeze has been slowly veering (shifting to the right). Your middle crew adds that the wind velocity has been fairly steady across the course. With this information, what is your plan for the run?

6. Describe two times on a run when you would not want to sail your ideal wind angle (i.e. your optimal velocity-made-good) for the existing wind strength.

6. You are sailing downwind on port tack in an oscillating breeze, and you hear the following conversation about the windshifts (assuming no jibe). In the space next to these comments, write the word "jibe" to indicate when you should have jibed.

a) "We're 5 degrees below median on port tack; still getting headed."
b) "Now we're on a big header. Down 10.""
c) "We're starting to get lifted. Down 5."
d) "We're up to median."
e) "We're getting lifted more now. Up 5."
f) "Here's the biggest lift we've seen. Up 10."
g) "Now we're starting to get headed again. Up 5."

7. On a port triangle, it's a good idea to go high on the first reach when the breeze is (circle one in each pair):

a) getting stronger getting lighter

b) steadily veering steadily backing

8. Why is it usually even more important to avoid the corners and laylines on a run than on a beat?