We can't cover everything about boat docking in one sitting, but I think you'll be surprised at how many of the basic principles of close quarters maneuvering are embodied in the example docking which I will be discussing shortly. First let me answer these two questions: Is this boat handling exposition for novice boaters? Yes, absolutely. Is it for expert boaters? Yes. Experts often pilot their boats by an instinctive feel, and are delighted finally to see and to understand why it is that what they do works so well.

That brings up another important point. Learning to dock is done on the water, in our boats, not by reading about it here. Book learning and good teaching are important, (I would say crucial), and allow us to focus our minds more quickly and clearly than just by using the trial and error method. However, ultimately, we must accept the responsibility ourselves for learning the mechanics and feel of boat handling, for what works and what does not, for us and for our particular boats, by actually doing it.

Port-side-to - a docking dissected

For the present purposes, I'm going to assume calm conditions, and not factor in the effects of wind. Wind is probably the hardest thing to contend with, when docking a boat, but there's a lot of water to pass under the bridge before that discussion, so I'll leave it out for now. Many of the techniques we're about to cover, however, will also prove useful in coping with wind.

What's your angle?

The first thing to notice is that this boater is coming in at an angle. This makes it much easier to aim for a particular spot, and to bring the boat in close to the dock without scraping. There isn't always enough "sea room" to do this, but when possible, using an angled approach makes life simpler.

Coasting and the power turn

Secondly, think about what throttle setting you would use at the beginning of the approach. A calm, orderly, accurate docking will usually require the slowest speed available, but on many boats, even idle speed is so fast that they have to coast. However, coasting is when "steerage", the ability to steer, is at its minimum, because either i) there is no discharge current from the propeller to amplify the effect of the rudder, or ii) with inboard/outboards, most of the steering "authority" simply vanishes when the transmission is in neutral. So, even when going very slowly, we still steer with power, when necessary. You could wish that the boat would just drift all the way in without wandering off course, but with many (not all) boats, that's all it would be: a wish! If in neutral gear, give a short shot of forward gear (generally only at only idle speed, but use more if required), to steer the boat back onto course, and then coast for another distance. If already in gear, and the boat is still getting away from you, open the throttle briefly for a few moments until you regain control. The general principle is that the sharpest turns can be made when the boat is going extremely slowly, because it will skid less widely through the turn. Yet, the turn is often
best done with power, so reconciling these two conflicting demands (minimal power to go slowly, more power to steer), means using power intermittently, and then using it vigorously enough to perform the maneuver.

**Keep up the momentum**

The next thing the boater will do, as the dock draws nearer, is to start to turn the boat. However, this is also about the time that he or she wants to decelerate to a stop, in reverse gear. While slowing down, the vessel may be hard to steer. This is largely because very little water will be flowing over the rudder (or worse, over the outdrive leg of an I/O).

Fortunately, boats in motion have momentum: once in motion, they tend to continue in motion, and once turning, they tend to continue to turn. This sometimes confounds the less skilled skipper, and yet momentum is exactly what to use when all other steering options fail. At just what point to turn, and how hard and for how long, I cannot say. It will vary by boat, by the prevailing conditions, and even by the skipper's individual style. But the boat must turn, and often this will be done by a brief, firm pulse of power, with the wheel hard over. Part way through the maneuver, by which time the boat is in reverse gear, the only thing that keeps it turning, and that keeps it sliding sideways towards the dock, is momentum. The skipper did this on purpose, took a run at it, so to speak, albeit very gently and cautiously, and then skidded the boat into its slip.

**A walk in the dock**

One final thing: it is very common for propellers to thrust asymmetrically, more on one side than the other, and in some boats the effect is often especially strong in reverse gear. It's called "walking", because it almost seems as if the stern of the boat wants to walk sideways, when you first engage reverse propulsion, rather than go backwards.

It's because of this effect that we are discussing specifically port-side-to docking. Right hand propellers walk the stern to port, in reverse (a minority of propellers are "left hand" - for them, this whole discussion is a mirror image). So, not quite as much turning momentum is required as would otherwise be. Asymmetrical thrust can be a nuisance, so at least in circumstances like this when it can be helpful, we might as well avail ourselves of it.

**Conclusion**

There is no conclusion to boat docking. I have yet to hear the final word, and I've probably discussed and studied it more than most. Even if this port-side-to docking were all there was to know (and it's not, it's just the barest beginning), one could still spend a lifetime honing and refining the skills and techniques it requires, and the better feel for boat handling thus engendered would spill over into all of our other close quarters maneuvering. And my wish for us all is that we continue to hone and refine for a long, long time, and that we love every minute we spend doing it!
This docking, like one presented here recently, recalls a pleasant memory, not only because it went well, but also because it so alarmed my sister-in-law. She recovered, and we are still friends, although I should not have so enjoyed her brief panic.

Why should she have been concerned at all? Well, if you haven't been there, sitting in a twenty knot cross wind, seeing what happens when you untie the boat, it can be hard to visualize. The short version of the story is that the wind sends the vessel scooting off sideways very briskly, and then vigorously resists any compensatory attempt you make to turn the bow back upwind.

Worse still, notice the direction of the propeller's discharge current as you hold the rudder (or outboard or outdrive) hard over. This jet of water also pushes you away from the dock, and very soon you're nowhere near where you want (and need) to be.

It is perfectly acceptable to walk the boat forward by hand, using its railings and lines, pulling it around the obstructing vessel. Alternatively, just accept that this docking is impossible, and maneuver the boat out into open water, from whence to make a more conventional approach, using some of the techniques presented here before, and all described in exquisite detail in *Boat Docking*.

Nonetheless, this day, when the marina staff asked me to move my boat, I did so from the helm, using throttle and rudder, making a short turn around the in-between boat, after which my sister-in-law was able to breathe again.

**Here's the trick:** forget about where the bow of the boat is pointing. At slow speeds trying to make a sharp turn in this beam wind, the hull will very definitely *not* track straight through the water. Relinquish any concept of fore and aft; accept and embrace that the maneuver will consist of sideways sliding and skidding.

Secondly, all of your attention and effort, at the start, must be directed at getting the boat to turn. Do not wait to see what the boat will do, and then react to it — there isn't time. Start from a premise of overreaction, and then be prepared to back off a little, if necessary. More concretely, right from the
beginning, have the rudder hard over, and give a firm shot of engine power (just hard enough and long enough to do the job, however hard and long that may be).

**You must be decisive.** Right off the bat, work very hard to get the boat turning. Combating the wind effects, in this situation, is not a casual exercise, and will require very positive and forceful control of your vessel.

**But be careful!** The use of such strong rudder and engine power, necessary though it may be, can lead to trouble. Get to know your boat in gentler weather before attempting the rough stuff — your margins for error here are quite small!

Next, notice the very high angle that the boat is turned to. It's not quite ninety degrees, but it's close! Why such an exaggerated motion is required is explained in previous articles here, and in even more detail in *Boat Docking*. But look at the diagram and analyze it for a moment and think about where the wind will send the boat if you just point the bow (more intuitively but incorrectly) along the shallower line of its actual intended trajectory.

Different boats handle differently, and as always it depends on whether you steer with a rudder or a propeller (outboards and sterndrives), on whether you have an external keel (and what type), and on whether you have a heavy displacement hull or a light planing one, among other things. But the general principles apply widely to almost any design of boat. You have to know your vessel, and while I trust that reading about docking here will help, ultimately we learn by experience and practice.

Let me add that I really do regard this maneuver as impossible if attempted in reverse gear. It must be done by going ahead, not astern. If any reader disagrees, I would appreciate hearing from him or her (<Charles T. Low>).

**Conclusion —** This isn't the only obstacle I have overcome in my life, and not the only time I've ever been broadsided. But this was a rare serendipity: doing a difficult docking well while harmlessly frightening my sister-in-law. Still, my wish for myself, and for you, is that your docking's will be possessed of more finesse and less drama, so that your hull and your interpersonal relationships will both remain unscathed.

Now, on to a Quartering Wind.
K
indly overlook any apparent self-aggrandizement if I describe one of my more successful dockings. Rest assured that I am only human, and that I have also had my own share of humbling close quarters encounters, which you will never hear about!

Those of you who have been following this column will, by now, recognize the familiar refrains of some of the basic principles, which underlie all docking maneuvers. It is the "timing, vigor and duration" of these maneuvers which vary, docking in a quartering wind being no exception. It is difficult to show, in a diagram, how different this is from docking in calm weather. The "crabbing", angled track through the water, to compensate for the wind, the more decisive use of engine power, the unavoidable speed with which everything happens — all of these are very unlike the similar maneuver on a windless day, and yet on paper the distinctions appear much more subtle than they really are.

Doing it well involves understanding (even if “only” intuitively) something about hulls (and their interactions with water and air), rudder steering, propeller steering (asymmetrical thrust), and angular and linear momentum, among other things. All of these topics receive thorough coverage in the book *Boat Docking*, which also describes many more specific docking scenarios than we can ever hope to present here.

The quartering wind docking holds a special place in my heart. Years ago, during research for the book, a dockhand complimented my docking. “Best I’ve seen today！”, he said, feelingly. It seemed significant at the time because, firstly, I am arguably a little klutzy. Furthermore, it was late in the afternoon, so I was by no means the first boater he had helped in that day. I thought, “Yes, this is beginning to work better!”

The assigned berth would have us docking on the starboard side in a starboard quartering wind — certainly not easy, especially in a high-windage boat. The problem that everyone there had been having that day was that, as a boat slowed to a stop, the wind would send it skittering off sideways before its crew could step ashore or attach lines to hold it in place. It would not have been pretty, and was probably quite exasperating for the marina staff who had seen it fumbled too many times that day.

What Charles did: Aw, gee, it weren’t nothin’, really! Truthfully, at first, it weren’t nothing — I just circled around a few times, back and forth past the slip, feeling how the boat and I were handling that
day in that wind, and giving myself time to formulate a plan. My crew and passengers pushed me a little, wanting me to act more quickly and decisively. The dockhand was waiting — and waiting — unaware, as yet, that his patience was about to be rewarded.

So, lesson number one: There is no need to rush, unless the boat is sinking or is on fire (or two boats are vying for the last open slip).

Keeping up the momentum: From here on in, this docking is a momentum (and/or “momentous”) exercise. This particular technique (there are others, of course) entails taking a gentle(!) run at it. (Make sure your lines and fenders are organized first!) Now, as you slow to a stop, thereby losing the ability to steer to the boat, all won't be lost because you have pre-steered. Notice the angled approach, establishing momentum which will, to some degree, continue your upwind, dockwards, sideways journey towards the dock, against the wind, even without further throttle or rudder control. Also, just before shifting into neutral or reverse gear (as the occasion demands), give the boat a little spin — it will continue to yaw, and slide the boat into a parallel orientation with the dock.

It all amounts to a spinning skid into position, and it requires some practice and experience to get it right. I have found that the practice goes better if one has some idea where to start — book learning and water time going hand in hand.

Our troubles weren't over yet. It was still a struggle to get the first two lines on smartly, but at least we got close enough to the dock, without hitting, that the dockhand could grab a rail and the crew could step ashore and start to tie up.

Conclusion — Every docking is different. Learning the principles is great, and learning the “timing, vigor and duration”, out on the water, builds confidence and makes your love of boating even more blissful.
Docking Broadside to the Wind

by Charles T. Low, author of *Boat Docking*

This particular docking confounded me more than any other, in the "early days," and so I would like to present it to you now, as my second *Boat Docking* article for Boat Safe (The Online Safe Boating Course), for December 1997.

Docking in an “off-the-dock” wind, when done well, brings praise even from experienced marina dock hands — the converse brings back several memories which, at best, I find embarrassing. The extra challenge of this specific situation, as illustrated, is that a long angled run at the slip is not possible, making an already difficult maneuver even more invigorating!

![Diagram showing docking broadside to the wind](image)

As usual, planing hull power boats suffer wind effects more than others, but I have also seen exactly this docking defeat moderately experienced skippers in *displacement* hull boats (even full-keeled sailboats). Docking into a brisk wind, let’s say something like 20–25 knots, stretches everybody’s skills.

The problem arises because, to do this docking, you must, eventually and inevitably, slow down and turn the boat broadside to the wind. The moving mass of air will then blow you away from the dock, and itself will also turn the vessel. Your options for countering the wind quickly dwindle, because boats cannot propel themselves sideways (ignoring, for now, twin screw effects, bow thrusters, etc.), and you may have very little steering ability as the boat loses headway.

The diagram shows where the boat actually goes, and it bears no resemblance whatsoever to where you want it to go! The situation seems hopeless — let’s see how to get around it.

Firstly, it does get better with practice and experience. Be prepared to invest the hours, developing and improving that intangible feel for your boat — in this situation, you’re going to need it! Some of the factors and constituents of that “feel” comprise the discussion which follows.

More specifically, notice, in the diagrams which follow, that the boat approaches the dock much more to one side of the slip (the outside side of the turn) than if there were no wind. This is because you will use power, in forward gear, as you turn, to control the boat, and that will move the boat ahead, in its slip. So, starting off to the side makes allowance for this.

Also, the initial approach is made almost perpendicular to the dock, keeping the effects of the wind (especially the turning effect) to a minimum until the very last moments, and for the same reason the turn is done relatively late, with the
hull already very close to the dock.

The maneuver will require very positive control of the vessel, necessitating, at times, vigorous (but brief) use of steering and throttle. Consequently, it must be done skillfully and attentively, firmly but smoothly.

**Momentum** — I talk a lot about momentum, “the great unsung hero of the difficult docking.” When thinking about docking into the wind, consider the concept of throwing your boat at the dock, using a spinning motion to skid and slide the vessel into its slip, against the wind.

You generate the "throw" by (i) taking a little run at it, and/or (ii) by giving a firm but gentle surge of power as you begin your final turn. The gray arrows, in the illustration, show the momentum, which you develop, and which persists (for a while) after the boat has turned.

Now, done just right, the boat will slide into its slip with a rotary motion, coming to a stop at exactly the right spot. “Done just right” — that phrase covers a multitude of sins! Don’t get carried away (figuratively or literally)! Take a little run, and use power gently.

If in doubt, under do it — better to err on the side of not coming in closely enough than of crashing into the pier or into nearby boats. If it requires several attempts to dock your boat, as you learn how your vessel handles that day under those specific conditions, fine. Don’t let anybody rush you (the most likely culprit being yourself)!

**Play the Wind** — At the other end of the spectrum, you can finesse your boat into position by starting out virtually stopped in the water, and then by playing with the wind. We know that as the turn begins, from a “head-to-wind” orientation, the wind will catch the bow and complete the turn for you.
It often does this in a big hurry, too, and leaves you still some distance from the dock, blowing away as you turn. You counter this with power, with the rudder (or outdrive) often somewhere near center. Let the wind turn you. Encourage it to do so. You can’t fight it, so co-operate with it. Constantly adjust the throttle and rudder, as necessary, to keep the bow very close to the dock, and pay attention, because this all happens very quickly.

**Combination Therapy** — In the real world, the two aforementioned techniques often blend seamlessly into one. Using them in combination allows you to commit not quite so much momentum to the maneuver, so you can go a little more slowly, and yet still have enough speed to achieve that final, sideways slide against the wind, in to the dock.

**Forward Thinking** — This maneuver only works well when making headway in forward gear. Very few boats steer well enough in reverse to allow control in a twenty knot crosswind. (If yours does, I would like to hear about it!)

The bow blows off downwind, more so as you try to steer the stern more vigorously towards the dock, and I know of no way (short of throwing lines ashore) to swing it back upwind again.

**That Secure Feeling** — Don’t relax until you get that boat secured! A significant broadside wind will have it scooting back into open water before you can say “Yassir, pass me that hawser.” If you’re short-handed for crew, you may only have time to get one line on before the vessel starts its downwind drift, so you have to have your mind and your equipment organized in advance, and know which line you’re going to use!

You have several options. The simplest consists of one amidships breast line, quickly cleated. Remove it as soon as you have your longer lines positioned and adjusted. Or, use a spring line along with engine power to hold you against the
dock while getting the rest of your lines on — an after bow spring, with the engine in forward gear and the rudder turned away from the dock, works beautifully, but involves a bit more work and risk (and time, of which there may be very little) than the amidships breast.

My favorite is the "Low-line," a double spring, one end attached at the stern and the other near the bow. It can be used with power, but even without it you can take the middle of the line ashore and use it to move the vessel ahead or astern or to pull in on either end — all of this with only the one line. You may have to cleat it off, somewhere in the middle, and do it fairly briskly if the wind is strong.

You may, then, be able to leave it there, performing the function of two spring lines, and adding bow and stern lines, as usual. Whatever you do, you must do quickly. The force of the wind broadside on even a medium-size small craft often surprises even experienced boaters.

**Caveats** — The timing, vigor and duration of these maneuvers is critical, and they are learned only on the water. The boat will very likely need to be handled very forcefully, often requiring emphatic steering and throttling, so be careful. If it goes wrong, it can go very wrong. Consider simply docking the other way around, end for end, if this is easier. If you feel that you must turn the boat around, then do it later, by any of various methods, at your leisure. Don't be stubborn about docking a certain way, or even about using that particular slip, if the conditions are too difficult.

**Conclusion** — There are many things, in life, that we know better than to do into the wind. Sometimes, however, in docking our boats, our only choice is an upwind dockage, and it ranks right up there among the more difficult close quarters maneuvers we have to face. We have covered a few of the concepts and techniques to help cope with this challenge. The skills which you will teach yourself and practice will also stand you in good stead in many other boating maneuvers, both in close quarters and on the open water. Practice in lighter winds, and build up to whatever your safety and your comfort level allows, but do practice: becoming more competent and confident in close quarters can only enhance the overall enjoyment you get from boating.

Alongside in a Headwind

— by Charles T. Low, author of *Boat Docking*
A high windage boat, trying to come alongside in a 25 knot headwind, has a problem — call it a challenge, if you're more positively minded.

The way to accomplish it is to accept that it won't be easy. Know your boat, and its handling well, and practice in lesser winds first. Have your lines and fenders organized in advance, pay attention, and be careful.

These pieces of advice are fairly general. A more specific one would be: "Take it slowly," except that to be more realistic it has to be: "Take is as slowly as possible." This is because the wind demands that the boat have very strong "steerability", and this steering authority comes i) from motion through the water, and ii) from keeping the power on. So, you may have to maintain more speed up than you would like, although, on the plus side, the head wind will slow you down a little too.

This is a very dynamic docking. Things change quickly. You have to do two contradictory things: i) think well ahead and ii) throttle and steer very actively, moment by moment.

What's the problem? The trouble arises for several reasons. Firstly, a headwind yaws the boat. This turning force varies by boat, being relatively mild and slow with a low-profile displacement hull sporting a substantial external keel, but tenacious and rapid for a planing hull boat. But in almost any boat, the wind tries to blow the bow "off".

Furthermore, if the wind turns the boat a little to port, for example, then the whole hull becomes an inclined plane, and some of the wind's force now pushes it laterally (also to port, in this instance).

So, now we have a boat turning and drifting sideways. The skipper's best response is to turn to starboard, perhaps adding in extra engine power to improve steerage. But notice now which way the propeller's discharge current is pushing the boat: to port.

It doesn't take long, under these circumstances, to use up your maneuvering room, and come crashing heavily into the dock with the port bow. By the time you're halfway through this disastrous maneuver, you're already beyond the point of no return. You can probably see it coming, and yet can't do a thing about it.

Let's say you have the skill to hold the boat directly head to wind. This would avoid the whole problem, except that you have to turn into the slip eventually, and once you turn, the wind may take over.

What's the solution? Not to despair: it gets easier after the first few (thousand) times. Once you realize what's actually going on, and that the boat's behavior is neither random nor capricious, you can handle the situation better.

Stay very focused. A difficult docking such as this does not necessarily require lightning reflexes (although they help!), but it does demand intense mental concentration.
When you turn (or when the wind turns you), turn very little, and straighten out early.

Stay ahead of your boat in your thinking. Don't wait until the wind has reduced your options to nil. You really have to anticipate what's going to happen next. There just isn't time to make observations, assess them, plan a response and then begin to carry it out.

A little extra speed through the water often helps the hull to track straighter, less susceptible to "wind yaw", and it affords you better steerage. The speed, however, is definitely a two-edged sword. The faster you go the faster things happen. The faster you go the harder it is to get the boat stopped. While you're in reverse gear, putting the brakes on, as it were, your steering ability may be precarious, so in this sense it's good to go as slowly as possible. In the real world, you'll have to find the optimal speed by experience and experimentation, and on balance it will probably be a little faster than bare idle speed.

If you're ever caught off guard by a wind such as this, remember that you can do "power practicing". Try a few simulated dockings out on the open water, before coming into the harbor, and then drive back and forth past the slip a few times. You'll get a quick course on how your boat handles in the present conditions. On your "final" approach, turn a little too little rather than a little too much. It's much easier to extricate yourself from a failed docking if the boat is upwind and head to wind, whereas if you get blown on an angle into the boat abaft, there is no elegant way out.

Conclusion — There is no conclusion to boat docking. In the unlikely event that we ever think we have headwind dockings completely licked, we'll find ourselves docking in a new boat which handles differently, or in a shifting wind, or in one which is one or two points off the bow. We will realize yet again, with joy and eagerness, that there will be many future opportunities to hone and refine our close quarters maneuvering skills.

Read the Review of Charles Low's Boat Docking.