

How to Buy a Kayak Paddle

By the Staff of BayCreek Paddling Center

Up the Creek Without a Paddle?

So you have your kayak and now you need a paddle. There is an old rubric that says if you need to save money, save it on the boat and buy the best paddle you can. The counter argument is it's easier and less expensive to upgrade a paddle than to upgrade a boat. Both statements hold true.

A Better Paddle Makes a Better Kayak

But, here's another truth that we have learned and relearned several times over the years - a better paddle makes a "better" boat.

The first time one of us learned this he was paddling a prototype of a boat and being asked what he thought of it by the company's owner. Frankly, he was thinking this boat is really, really ordinary but he wanted to find something (anything) complimentary to say about the boat's performance. To stall for time, he asked if he could swap paddles since both the one he was using and the one the company owner had were new to him. Surprisingly, a few strokes with the different paddle and boat came alive. He was suddenly raving about the boat's agility and its lively feel. Since that time, the same thing has happened again to several of us and it surprised us each time. The moral of this story – a better paddle makes a better kayak! So we are going to try to help you sort through all the variables and pick the best paddle for your needs.

What's with all the different blade shapes?

There are large blades, small blades, spooned blades, dihedral blades, wing blades and on and on. What's a novice to do? Well, hopefully you can visit at a shop where you can try a few in the water with your boat, but to help you winnow the list of candidates, here are some general facts.

A) The larger the blade the more the bite. If you are strong and like to, or need to be able to accelerate your kayak, you are going to want and need a relatively large blade. Why? Because the larger blade has more bite (technically drag) and slips less in the water. Two things happen as you take a stroke – the boat moves forward and the blade moves backward, i.e., slips, until they pass. The less the blade slips, the more your boat moves forward. So, if you like to surf, paddle whitewater, race, etc. where acceleration is important, you will need a relatively large blade. Some blade shapes also attempt to emphasize the catch – the first portion of the stroke, where the paddler is in the best position to apply force.

B) The smaller the blade, the less effort per stroke. If you like to cruise at moderate speeds on calm waters, or like to paddle for long periods of time, a smaller blade may better suit your purposes. These blades won't accelerate a boat quickly, but once up to speed, they can maintain speed with less effort per stroke, though you will be using a slightly higher stroke rate.

C) Blade shape also affects the bite. Comparing two blades of the same surface area, other factors come into play. These are the aspect ratio (length vs. width), the surface profile and the edge sharpness. A long skinny blade will have less bite than a squarer blade. A cupped or spoon shaped profile will have more bite than a plane surface and a plane surface will have more bite than a dihedral shape. (A dihedral blade has a ridge running down the centerline of the power face). And finally, a blade with a thin edge, such as fiberglass or carbon fiber will have more bite than a blade with a thicker edge.

D) Low Angle Blades. Over the last few years, manufacturers have been marketing so called low angle blades, intended for paddlers who prefer to hold the paddle relatively low (more horizontal). This may be due to their boat being very wide or it may be because they don't have the strength to hold the paddle at the nominal 45 degrees of most paddlers. These blades are a little longer and a little narrower

than typical touring blades. Our opinion – there’s not enough difference between a typical touring blade and a low angle blade to put this high on the needs list. There are other things far more important.

E) Wing Blades. BayCreek is active in the fitness paddling market and we carry these specialized blades because they have such a high degree of bite when used with the proper technique. They are called wings because of the shape, like an airplane’s wing. In addition to an aggressive scoop that bites a lot of water, the technique used with them causes the paddle to travel away from the boat’s keel line as the stroke progresses. This sideward motion causes water to flow over the curved shape (foil) of the wing blade creating additional drag (resistance to slippage). So, these blades slip very little in the water, requiring the paddler to pull the boat up to them. It’s efficient, but it consumes a lot of energy. BayCreek carries several different shapes from Epic and Bracha. Consider these blades if getting a workout is high on your list of uses for your kayak.

Some manufacturers categorize their blades as “relaxed” and “active”. These generally describe the degree of bite, with the relaxed paddle being softer in the water and active having a greater catch (less slip).

Bottom line – match the blade (and shaft) to your physique and the intended use. Any combination of size and shape that provides the bite you are looking for will work just fine. In addition to thinking about how the paddle (and kayak) feel during a short demo, think about how it might feel after several hours. A blade with an aggressive bite may wear you out over a long paddle.

How Long Should My Paddle Be?

For some reason, paddle lengths are measured in centimeters and your sales person may forget that the numbers may mean nothing to you. So, here’s something that will help you break the code. 10 cm’s is approximately 4 inches. A single cm is a bit less than a half-inch and most paddlers are insensitive to a length variation of 5 cm (2 inches).

Here’s the key concept. The blade and the shaft work together as a system. They combine to propel your kayak. The blade and the shaft length are like gears of a bike, they combine to transfer force. Select any blade and increase the shaft length, the effort per stroke goes up. Of course, the distance travelled also goes up. Similarly, hold the shaft length fixed and vary the blade size (bite) and the effort varies correspondingly.

Today, most touring paddles are 210 to 230 cm. Let’s start with 220 as a centerline and go up or down from there. Here are a bunch of factors that can influence your decision. This may give you some insight, but it is all going to come down to what feels right to you.

Add 5 – 10 cm’s.

- 1) You have a long torso
- 2) Your boat is fairly wide (>24 inches)
- 3) You are stronger than the average paddler
- 4) Your blades do not have a lot of bite
- 5) You paddle at a low angle
- 6) You plan to paddle mostly flat water
- 7) Your blades are unusually long*

Subtract 5 – 10 cm’s

- 1) You have a short torso
- 2) Your boat is fairly narrow (< 22 inches)
- 3) You are not as strong as the average paddler
- 4) Your blades have a lot of bite (for example a wing)
- 5) You paddle at a higher than 45 degree angle
- 6) You plan to paddle in waves and rough water. (faster response)

7) Your blades are unusually short*

* Technically, one should pick a shaft length, independent of the blades. Canoe paddles are sold by overall length, but fitted to the buyer using just the shaft length. Kayak paddles should likewise be sold this way, but it is not yet an industry technique. BayCreek is studying this and may convert to this means of fitting.

Some paddles today offer variable length adjustments. This is usually confined to a range of about 10 cm (4 inches), which can be a vary nice option. If you paddle different boats with different widths, or you share your paddle with someone of a different size or paddling style, or you like the idea of fine tuning your paddle length to your needs, a variable length shaft could be a nice option for you.

Bottom line- use the guidelines above as a general guide. If possible, try out some paddles in your boat and see what feels best to you. Unless you are racing, don't get hung up over differences of 5 cm. We suggest you start your tryouts with the shortest length in your range and go up from there.

To Feather or Not to Feather

A feathered paddle is one that has the blades angled with respect to each other. It stemmed from a racing culture where it was desired to have one blade pulling in the water while the other cut through the air. It makes sense for a boat moving forward at 10 mph, but not so much at 4mph. Additionally, a feathered blade offers greater surface to a beam (side) wind, a wind tending to push a boat sideways and a paddler over.

Today, the best reason for a touring paddler to feather his or her paddle is one of wrist alignment. For any given paddle angle, that is, high, nominal or low, there is a feather angle that eliminates or minimizes wrist misalignment. This is too complicated to explain here, but if you can stop by our shop, we'll happily show you what we mean. If someone is telling you that you should roll your wrist back and forth, in the manner of a motorcycle throttle, you should definitely come see us.

So, we favor a feathered paddle from a kinematics standpoint. If you paddle at a nominal shaft angle, say 45 degrees, a feather angle of 60 degrees will serve you well. If you are a high angle paddler, for example a racer, you might want 70 degrees and for a low angle paddler, 30 or 45 seems to work well.

Feathering is control hand sensitive. It needs to be set for either right or left handed paddlers. Some paddles only allow right hand control, but most of today's paddles offer both. And some paddles have only 60 degrees feather, but many have multiple settings. Some are even continuously variable over a full range.

Bottom line – what's the best angle for you? Almost all paddles enable 60-degree feather. If that works for you, it will maximize your options and possibly minimize your cost. If your stroke calls for another angle, or you like the option of fine tuning your feather angle, look for paddles with many increments or even continuous adjustment.

Bent Shaft or Straight Shaft

Several years ago, paddle manufacturers began offering paddles with shafts formed in a series of angles. These are called bent or crank shafts and their intended purpose is to facilitate wrist alignment in the lateral plane. If you place your hands a bit wider than shoulder width on a straight shaft paddle and then hold that paddle in front of you with the shaft parallel to your chest, you'll see your wrists having to bend to accommodate the misalignment of your forearm and your hand. Now, a crank shaft helps eliminate this by angling the shaft in the area of the grip.

Some crank shafts also provide the benefit of the “caster effect”. If the shaft axis leads the blade axis the blade has a tendency to self align in the water, that is, to square its self up with the line of force. This can be a very nice attribute.

Wrist misalignment can be accommodated with a straight shaft by gripping the paddle with the thumb, index and middle fingers and relaxing the ring and little fingers. However, this is not as secure and can be difficult to maintain in rough or windy conditions. The racing community has not found any performance advantage with the crank shafts.

Bottom line – the crank shaft definitely has its advantages and its devotees, but straight shafts dominate sales. This may be due to the added cost and weight of the crank shaft. It’s our recommendation that you try both straight and crank shafts, however if you feel no difference in comfort or performance between the two, there is no sense in spending extra money.

Fiberglass, Carbon or Plastic?

Shaft material options include aluminum, fiberglass and carbon fiber with weights decreasing and prices increasing in that order. (See Weigh your Options below). Aluminum is the least expensive but it is quite serviceable. We use aluminum shafts in our rental operations and seldom have any trouble. One disadvantage with aluminum is its thermal conductivity. On cold days, it feels colder to the hands and tends to stay cold. Of course this can be overcome with gloves or poogies. The biggest disadvantage to you may be that manufacturers target the aluminum shafts to the entry-level market and limit the blade options to basic shapes and molded thermoplastics.

Composite shafts are made of fiberglass or carbon fiber or a combination of the two. These shaft options are lighter than aluminum, but they can also be tailored for a degree of flex. A shaft that is too flexible does not allow instant application of force and can feel mushy, while one that is too stiff can be jarring. Within limits, desired level of flex in a shaft is determined best by feel and your own personal tastes.

Blades also come in various materials: molded plastic, fiber-reinforced plastic, fiberglass and carbon fiber. Again, weight decreases and price increases in that order. Blade material may be even more important in terms of the overall feel of the paddle. Most of us value the feel of a composite blade. This may be due to the fineness of the edges achievable with fiberglass or carbon fiber. A fine edge slices into and out of the water more easily offering less resistance and less noise. It sculls better and it has more bite.

The one disadvantage with a fiberglass or carbon blade is that it can be damaged more easily. This damage is generally limited to nicks on the edges due to impact, and can be repaired with simple application of epoxy. Plastic molded blades are more rugged, but not immune to breakage.

Bottom line - if your paddling mostly involves rocky shorelines where impact is likely and push-offs desirable, molded fiber-reinforced plastic may be the best overall option. It will generally be less expensive as well. But overall, a fiberglass or carbon fiber blade pays dividends in feel and weight with each outing you take.

Weigh your Options

As we alluded in the previous section, the materials used in the paddle determine the weight. Paddles generally weigh from 36 oz down to 22 oz with prices going from \$100 to \$500. Light paddles are definitely a pleasure to use. You will be supporting a good portion of the paddle’s weight the entire time you are paddling, so over a long paddle, a significant weight difference can add up.

The distribution of weight also matters. Paddles with a good portion of the weight concentrated in the blades will feel different than one of the same overall weight but where it weight is less concentrated at the ends. This is typically gauged as the “swing weight”, the feel of the paddle as you swing it back and forth. A paddle with a lower swing weight should feel more responsive to you. An open water paddler responding with a quick brace would appreciate it.

On the other hand, if you intend to paddle expeditions where durability is a principle concern, we tend to favor the more sturdy paddles and are willing to sacrifice weight for ruggedness.

Bottom line – Weight and its distribution matter. Buy the lightest paddle that meets your overall requirements, feels good and fits the budget.

Conclusion

Bet you didn't think it could be so complicated. But, after reading this you should definitely have a better idea of the important things to consider. We will be working on a separate check list of the things to pay attention to when demo-ing paddles. If it is not in our article archives by the time you read this, it will be soon. Come down to BayCreek and try some paddles. We'll be happy to help you through the process.