

Choosing a Kayak

So Many Boats - So Little Money

By Ed Berg



This is the final part of a three part series discussing choosing a sea kayak.

If you would like the other articles, contact Susan Martineau at suanmartineau@hotmail.com.

Your Size and Weight:

More and more manufacturers are producing their hull designs with one or even two variations in depth to accommodate paddlers of different sizes. A short, 110 pound female will be very uncomfortable paddling a boat sized for a six foot-four, 220 pound male. Her paddle won't enter the water cleanly and close to the hull. Her spray skirt will shove her float jacket up into her armpits and around her ears. Because she doesn't weight the boat enough, it will turn too easily in the wind and waves. She'll have a terrible time turning the boat upwind, then when she gets disgusted and heads for shore, she'll have a terrible time getting it up on the roof rack. Then we'll see the boat for sale in the Newsletter.

Look for statements in the reviews or catalogs about the suggested weight and height range. Most manufacturers list a weight range of about 50 pounds for the paddler.

It is also important to consider how much load you want to carry. Travelling light, enough gear and supplies for a week's trip will weigh about 50 pounds. Add cameras, tripods, dutch ovens, spare chickens and the weight goes up. I have difficulty finding enough gear to make an 80 pound load.

Your Paddling Strength

This is the really Kayak-Nerdy part of the series. It takes a little more effort to grasp, and I've included a chart (sorry, it's the repressed engineer in me) to illustrate some ideas. But I keep reading reviews that say things like "This is a really fast kayak." Bilgewater. A "fast" kayak for a 200 lb physically fit male expert paddler will paddle like a six-day old roadkilled pig for a novice 120 pound female. Her

easiest-paddling boat will paddle like the same unfortunate pig for the big guy. Read on, and be enlightened, and perhaps you will achieve Kayak Nerdhood.

The chart shows speed and drag at levels of effort attainable by us club paddlers. The curves are for representative boats from 13 to 19 feet long, plus one 21-foot tandem. Drag is on the vertical axis, so at any speed along the bottom axis, the draggier boats are shown higher up on the chart. Conversely, if you enter the chart from the drag axis, at any paddling level, the faster boats at that level of thrust are further to the right.

Drag is Paddlers' Enemy Number One. Until I read the published numbers for the amount of drag a paddler can overcome (equal to the thrust he/she can generate), I thought I was putting out a lot more thrust. Here's a simple guideline for putting yourself into the Drag/Thrust versus Speed charts.

- 2 pounds: Any paddler, all day. (easygoing RMSKC Club paddles)
- 3 pounds: Any fit paddler, all day. (energetic RMSKC Club paddles)
- 4 pounds: A strong, advanced-level paddler, all day. (maybe a dozen people in RMSKC?)
- 5 pounds: A recreational racer, several hours (2 or 3 people in RMSKC?)
- 6 pounds: A recreational racer for one hour. (2 or 3 people in RMSKC)
- 9 pounds: A recreational racer for one mile (about 10 minutes). (2 or 3 people in RMSKC)
- 11 pounds: An Olympic racer for three hours. (No one we know.)
- 25 pounds: An Olympic champion for ten seconds. (Paddlers pray to this god.)

If you get a good workout at club paddles, you can comfortably generate about

three pounds of thrust. Congratulations! You have LOTS of choices! The chart shows that at two pounds of drag, all the single boats move within one-tenth of a mile per hour. At three pounds of drag, all the singles would be moving within two tenths of a mile per hour of each other. Your choice should be governed by your use, your weight, and by the boat's handling characteristics. Shorter boats are easier to turn, especially in wind. Longer boats cruise long distances more easily.

If you're one of the Club's stronger paddlers, and think you can put out 4 pounds for a good while, you will frequently be paddling at drag/thrust levels where a 17 or 18 foot boat would be more efficient. The chart shows that at four pounds of drag, the boats start to separate in speed. The 17, 18 and 19 foot boats are moving between 4.8 and 4.9 mph, while the shorter boats are all under 4.8 mph. You'll have to work a bit harder at the easygoing speeds below 4 mph than someone in a smaller boat, but as you start paddling harder, you'll move faster while the shorter boat hits a "wall" of drag. This is where the 13 and 15 foot drag curves tilt more sharply upward. The 15 foot boat is especially draggy; it moves slower than any other single boat no matter how easily you paddle, and is actually slower than the little 13 footer until the level of effort exceeds 5 pounds.

Notice that the low-drag, long (and skinny: only 21" wide) 19 foot boat is no more efficient than the 17 or 18 foot boats until the paddling effort gets up around 5 pounds. A boat longer than 18 feet will be no easier for you to paddle than a 16 or 17 foot boat, unless you are capable of racing levels of output, and it may be harder to maneuver. Longer boats are often described as "fast", but this only applies to paddling at over 5 pounds of thrust. Up at the energetic 5 pounds of paddling effort, the 13 and 15 foot boats are moving less than 5 mph, while the long boats are going 5 1/4 mph.

These speed differences don't sound like much, but let's put them into terms of a day paddle. One paddler has the 15 foot boat, the other has a longer boat. Each

paddler can put out four pounds of thrust comfortably. They paddle for three hours one morning, and what happens? The longer boat has been moving at about 4.8 mph, so it has covered 14.4 miles, while the 15 footer moving at 4.5 mph has covered 13.5 miles, and will take about 15 minutes to catch up. The tandem, by the way, with 8 pounds of thrust, has been going 5.6 mph, and is about 3 miles ahead of the 15 footer, and will be waiting half an hour for the 15 footer to catch up. But this is no problem, because the tandem, with all the room inside, has been carrying the group beer chest and the bulky chips and salsa. By the time the 15 footer arrives, the tandem paddlers' tent is up, their chairs are unfolded, and they are feeling rather mellow and superior. Does this help you understand the REAL, HIDDEN meaning of the drag chart?

For the technically-minded, the points where the curves break sharply upward are where the drag from skin friction becomes less important than the drag from wave-making, which is related to hull length and shape. You frequently see the term "hull speed" referred to in reviews. This is the

speed at which a hull points its bow up and begins to climb its own bow wave. Hull speed is higher for longer hulls. For power boats, it separates boats with low power and high power into "displacement" and "planing" hulls. For very narrow boats like kayaks, hull speed becomes difficult to determine, and has no real bearing on normal paddlers. No one less than an Olympic paddler can push a boat longer than 15 feet close to hull speed. I have seen one very big, strong club member paddle a short whitewater boat fast enough to tilt the bow up for a few seconds. He was approaching hull speed. Nevertheless, for cruising levels of paddling effort, we want our boats to stay below the wave drag speeds. Efficient hull shapes do two things: they push this transition zone as high as possible for given waterline lengths, and 2) they make it easy for you to paddle at 3 to 4 mph. The chart shows that the 15 foot boat is not very efficient. In fact, it's relatively slower and draggier than the 13 foot boat. Notice also the 17 footer, which is actually easier to paddle than the longer boats all the way up to 5 mph. Moral of the drag chart: for cruising boats, get something

between 16 and 18 feet long that makes you smile when YOU paddle it.

If anyone has a boat that has been reviewed in Sea Kayak Magazine and would like a chart of their boat's drag curve relative to some other boats, I'll be happy to plot it out and email it to you.

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Conclusion

If you've followed through all this wordage on picking the right kayak for yourself, you'll probably have come to the conclusion that the most important part of a kayak's nature is not how fast it paddles, but how much you enjoy it. And you probably enjoy your kayak already, proving that a lot of kayak handling is personal, subjective, and just depends on you getting used to it. So, there isn't much reason to keep writing, is there?

