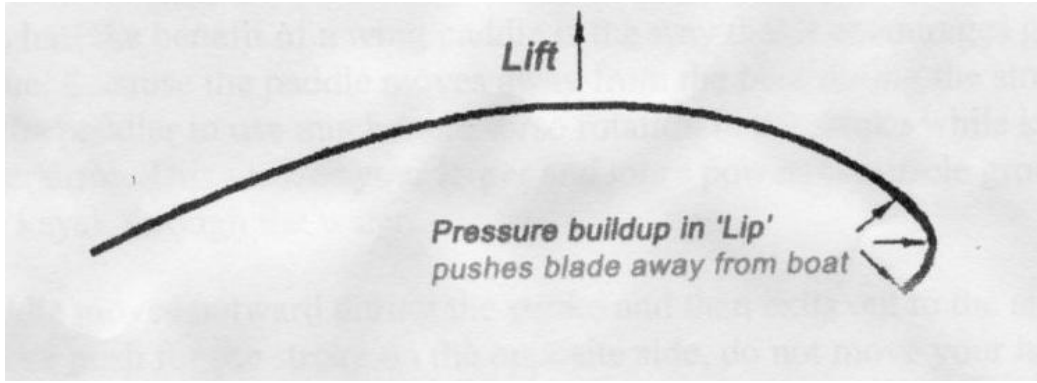
The Theory

Wing paddles were first used by the Swedish national team in the mid 1980's for flatwater sprint racing. Within a few years, the times in all Olympic sprint kayak events dropped by about 2% and wing paddles became necessary equipment for anybody hoping to be competitive in flatwater races.

The cross section of a wing paddle is shaped like an airplane wing. If this were an airplane wing in the diagram below, as the airplane moved forward (to the right) air flowing over the wing would provide upward lift on the airplane. In the case of a paddle blade, as the paddle moves away from the boat, water flowing across the blade provides forward lift on the paddle. Thus, rather than acting as a stationary anchor on which to pull, the paddle itself can actually move forward in the water and pull you along with it.

While wing paddles are definitely more efficient for the forward stroke, they do require learning a different technique and do not work well for all types of strokes.

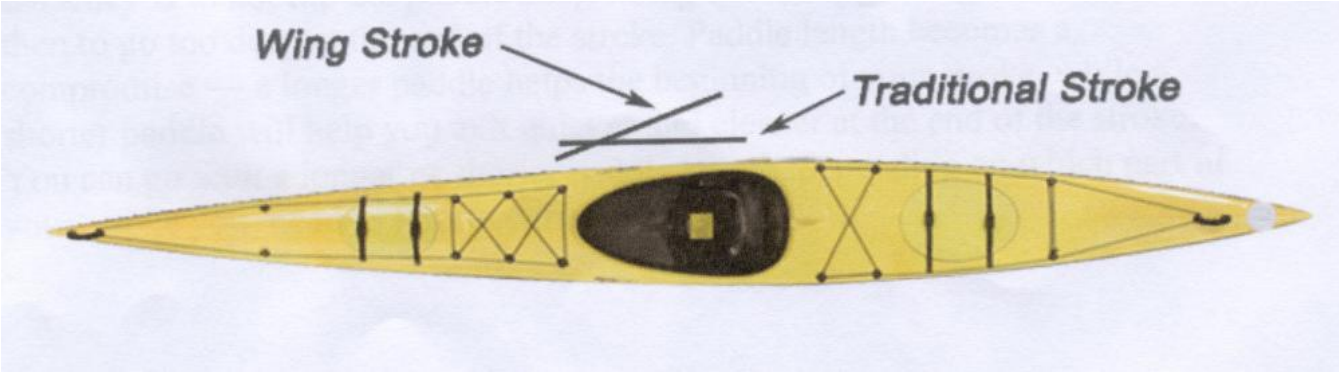


The Stroke

A wing paddle must be moving sideways, away from the boat in order to function properly. This is the main difference between a wing paddle stroke and a traditional stroke. With a traditional stroke, the paddle is pulled relatively straight back during the stroke. With a wing paddle the stroke begins with the paddle next to the side of the kayak, but then the paddle moves steadily away from the boat during the stroke. The stroke generally finishes 12"- 18" further away from the boat than it started. Because the wing paddle is an open wing section (concave on the bottom side), water pressure builds up on the 'lip' at the leading edge of the blade and helps to push the paddle away from the kayak during the stroke. Therefore a wing paddle naturally wants to take the correct path in the water. It is best to pull straight on the paddle without forcing it into or away from the boat, letting the paddle move out on its' own. It will take a while to get used to the feel of the paddle and stroke; but once you find it, the stroke will feel very stable and comfortable. When switching back to a standard paddle, most wing users encounter a lot of flutter, as the traditional paddles do not track nearly as solidly as a wing blade in the water.

Perhaps half the benefit of a wing paddle is the way that it encourages good technique. Because the paddle moves away from the boat during the stroke, it allows the paddler to use much more torso rotation in the stroke while keeping straighter arms. This utilizes your larger and more powerful muscle groups to pull the kayak through the water.

The paddle moves outward during the stroke and then exits out to the side. To begin your push for the stroke on the opposite side, do not move your hand close to your head (this would require bending your arm significantly). Instead, start your top hand push wide (away from the body where your previous stroke ended), and slowly come across with your top hand as you push forward. Towards the end of the stroke, your top hand will cross the center of the boat. This is desirable - as your blade and bottom hand move away from the kayak, your top hand should cross over this same amount. The angle of the paddle shaft when viewed from the front should remain nearly constant during the power phase of the stroke.



Paddle Selection

An old wives' tale among paddlers is that you should be able to reach over the top of your paddle with your fingertips when it is standing vertically on the ground. Experience has shown that this is not true. The above rule will result in a paddle that is too short for a shorter person, and one that is too long for a taller person. When Abe Lincoln was asked how long a person's legs should be, he replied "Long enough to reach the ground!" Likewise, your paddle should be long enough to reach the water. (Check out our *Paddle Wizard* to help you find the right type of paddle and paddle length)

Paddle length is a function of many factors including:

Body Size - A tall person will use a slightly longer paddle than a short person.

Seat Height - The higher your seat in the kayak, the longer your paddle will need to be to reach the water.

Boat Width - A wider kayak will require a longer paddle.

Blade Shape - The paddle should be placed in the water so that the top of the blade (blade/shaft junction) is just at the surface of the water. Therefore, your shaft length should be consistent and a paddle with longer blades should be longer overall in length. An active touring (short, wide blades) paddle should be shorter than a relaxed touring (long, narrow blades) paddle.

Paddling Style - A vertical stroke (pushing relatively high with the top arm and paddle blade close to the boat) will require a shorter paddle than a horizontal stroke (low pushing arms and wide stroke).

Personal Preference - Those who prefer long, slow strokes should use a longer paddle than those who prefer short, fast strokes.

The top of your paddle blade should be at the water's surface. A natural tendency is to not dip the paddle deep enough at the beginning of the stroke, and then to go too deep at the end of the stroke. Paddle length becomes a compromise - a longer paddle helps the beginning of your stroke, while a shorter paddle will help you exit quicker and cleaner at the end of the stroke. You can go with a longer or shorter paddle length, depending on which part of your stroke you need to improve the most.

Wing Paddle Limitations

While a wing paddle provides greater power and efficiency for the forward stroke, it also limits the types of alternative strokes that you can do. As shown in the first figure, a wing blade does not work well whenever it is moved inward towards the kayak, or so that it forces water into the 'lip' on the leading edge. When this happens, the blade stalls, and usually dives downward in the water, taking you with it.

A wing paddle works fine for the following strokes - note that the blade moves in the favorable direction in each of these cases.

- Forward Stroke - as long as you keep the blade moving away from the kayak.
- Modified Sweep Stroke - emphasis the first part of the stroke where the blade sweeps out away from the kayak, then exit the water before pulling back towards the boat.
- Low Brace - with the convex side of the blade down.
- Eskimo Rolls - The blade moves in the favorable direction with a Sweep roll, and is relatively stationary during the 'C to C' roll.
- Backstrokes - work fine. Do not turn the paddle around to do a backstroke, but use the back side of the blade (this is the recommended way for all paddles).
- Ruddering - generally OK, but can be a little trickier than with traditional paddles.

Avoid the following strokes when using a wing paddle.

- High Brace - with the concave side of the blade down. You will probably end up swimming.
- Sculling - Does not work well during the return portion of sculling strokes.
- End of Stroke Steering Corrections - these are usually done by pulling the paddle back towards the boat at the end of the stroke - a 'no no' with wing blades. Often used by paddlers in kayaks without a rudder.
- Duffek Type Strokes - where the blade is planted in front of your body and the boat is turned around it.