

## Using A Wing To Make Your Kayak Fly

**Check out the garage of any keen multisporter and you'll find an impressive array of paddles, some trashed, some put aside and maybe one or two currently deemed useful. Why so many paddles to power one boat? Because in kayaking circles there is no greater argument and confusion than paddle choice.**

### **Kayak Paddles – A Metaphor For Life**

How long, how big, wing blades or flat, alloy tips, carbon or plastic... the variables surrounding kayak paddles are almost infinite and we all go around in circles (some times literally) trying to work out what works best. Sometimes though, what works is often confused with what works for others and all of a sudden fashion over rides fact.

As with life, two things have traditionally influenced kayaking – technology and fashion – and often they combine to confuse us. At the elite end athletes, coaches and sometimes countries spend huge amounts of time and money working out what works best. Only 30 years ago Olympians paddled wooden K1's, but today their boats are made of the same carbon/kevlar technology used in spacecraft.

In more recent years, the development of the free market has meant improved access to such technology. Twenty years ago when multisport first appeared we were limited to fibreglass recreational craft. But today even the most recreational paddler has access to the same technology used by both Olympic champions and astronauts.

With the free market, however, comes fashion and as with clothes what we once swore by quickly becomes almost laughable as the school of thought is changed by new technology and often simply by what new champions are doing. Like clothes, however, somewhere along the line old technology and fashions often reappears as a revamped newer, better way of doing what we used to do. Such has been the theory behind kayak paddles

Only 20 years ago paddles were essentially flat and used in similar fashion to the water wheel on a paddle steamer. But in the mid-1980s the technology behind propellers for both air and water travel rolled over into kayak paddles. The advantages were huge says Tony Free, who's Canoe Sports company was the first in New Zealand to produce propeller or wing paddles commercially.

“Flat paddles,” explains Free, “create positive drag on the face to give forward momentum but at the same time negative drag on the back of the blade resulting in efficiency loss. The wing paddle, used correctly, generates positive lift on the blade back as well as positive drag on the face.”

The wing or propeller paddle was first seen used by Swedish paddlers and won it's first world championship in 1985. It quickly caught on and by 1990 multisporters were picking up wing paddles. But this is where fashion overtook theory as multisporters copied what Olympic champions such as Ian Ferguson were using.

“Ferg would hold seminars and people would ask him what sort of paddle he uses,” says former New Zealand wild water kayaking rep Craig Jones. “He would say, ‘222cm,’ and all the multisporters were trotting off and buy 222s.”

Jones' point is that while 222cm is a useful length for an Olympic class sprint paddlers, the average multisport kayaker would struggle to even pull it through the water. This is a good example of fashion confusing choice. For years multisporters went for long paddles, but now the fashion has gone short. Other examples are adjustable versus fixed shafts and carbon/Kevlar versus the new injection moulded plastics.

None are totally wrong; rather each has a place in regard to the distance, type of water, type of boat and experience and fitness of the paddler. In short – the answer lies in fitting the paddle to the person. Read on to find your fit.

### **Get a Wing!**

So where do we start in regard to finding the perfect paddle? Well, first things first; there is a misconception amongst multisporters that inexperienced paddlers are better off with the old-style flat blade. Ten or 15 years ago – when early wing paddles were notoriously unstable in the water – this might have been the case, but modern wing paddles have turned this misconception on its ear.

“A wing paddle is a lot easier to learn with,” says former wild water kayaking world champion Andrew Martin. “The problem with flat blades is that to make them effective you have to keep accelerating through the entire stroke otherwise water escapes out the edges of the blade, which just lets it slip through the water without achieving much. With a wing blade the lips and concave shape hold water in, which means you move more water with every stroke.”

What this means is that there is less technique involved in paddling wing paddles. Canoe Sports Tony Free also points out that “The shape and lips on wing paddles make them a lot more stable in rough water.”

Having established that anyone interested in multisport kayaking is better off with a wing paddle, the consideration now shifts to what type. There are three main wing paddle manufacturers in New Zealand – Descente, Legend, and Canoe Sports – all of whom produce world renown products and in fact sell bigger volumes overseas than here in New Zealand.

Andrew Martin has been making paddles for 22 years, first for himself, then for training partners and finally for us under the Legend Paddles brand. Canoe Sports got into wing paddles in 1985 when Ian Ferguson asked them to refine and manufacture European blades that he had been using. Today they are Australia’s biggest paddle manufacturer.

The biggest selling paddle amongst multisporters, however, is the Descente brand manufactured by husband and wife team Bernard and Sandy Fletcher at e-paddles.com. Like Legend and Canoe Sports, they have been making kayak paddles for more than 20 years and have used their own designs to claim wins at the Coast to Coast, Bernie in the teams section and Sandy in the individual women.

All make a variety of models, with Descente producing two ranges, the Fusion and Flite. The Flite 3 and Flite 5 have been New Zealand’s most popular paddles and in the last two years Steve Gurney has won various events using the new Fusion range. Andrew Martin of course, has used his Legend range to win world championships, as has Ian Ferguson with the Canoe Sports brand, which recently introduced a new production technique that makes wing paddles more affordable and durable.

However, while all these brands produce first-rate paddles, which of them you chose will depend largely on personal preference. More important are the key variables in any paddle – blade size, shape, length and type of shaft – all of which are decreed by what you intend to use the paddle for.

### **Blade Size**

Most manufacturers produce a range of small, medium and large blades. The fashion problem has meant big blades were once popular, but today it is generally and logically recognised that the large blades tend to be for Olympic-type sprint racing or flatwater kayak marathons. For multisport and downriver racing the small and medium blades are best.

The reason for this is quite simple. While a big blade holds more water and is potentially faster, it is also harder to pull. In longer races or down river situations where you’re also pulling the blade against the flow of the river a big blade can become your worst enemy. Add to this the fact that in multisport you

often end up kayaking when you're already tired from other disciplines and a big blade could actually make you slower.

### **Blade Shape**

Fashion and technology has meant blade shapes tend to change quite frequently, and according to Tony Free too much. "The two biggest things in any market are that people like something new and different and people will tend to do what the top end paddlers do," explains Free, who's Canoe Sports company introduced the new injection moulded plastic wing blades in 2001.

Elite athletes tend to drive market changes. For example, because wing paddles made paddling easier a trend toward bigger blades developed in the late 80s. In long races this made for tired arms, so designers introduced a twist in the shape of the blade to de-power it in the same fashion as a boat or aircraft propeller has de-powering twists to reduce engine torque.

Of course these changes did make moving those big volumes easier during long races, but today it has finally been recognised that a smaller blade and higher stroke rate was perhaps the best answer. Tony Free says Canoe Sports recognised this in their new design.

"When we designed that paddle we wanted it to be suitable for the masses not just top line paddlers," he said. "So we actually took a step backwards to a very user friendly shape that we used to produce about five years ago."

The Canoe Sports shape is very classical and similar to both the Flite 5 and Legend Champion. The new Fusion range and the Legend Marathon, however, are quite different in that they have taken on the optimal speed for minimal drag principles of the long, thin wings and sails that we see on high speed yachts and gliders.

These blades hold a similar volume of water to other medium sized paddles, but their longer, thinner shape reduces both the torque of the paddle when fully loaded and the length of the shaft for a given paddle length. This means you are holding the paddle closer to the water, which Andrew Martin says will help promote both turnover and efficiency in longer races and downriver situations.

### **Paddle Length**

Essentially, the length of your paddle affects the leverage one can apply in the push/pull part of your stroke. Essentially, the longer the paddle the more leverage, but that really only applies if fitness and water conditions allow you to keep applying that leverage for the entirety of the race.

As mentioned earlier, the fashion for big long paddles seems to have finally been shunted out of multisport paddling. The current fashion is for short shafts and medium to large blades. While the latter is a preferable fashion in regard to multisport paddling, paddle length should really relate to fitness, water conditions and height of the paddler.

The fitness issue is quite obvious; longer paddles might be potentially faster but you have to have the fitness to keep turning that long paddle over. This can become worse in rough water or downriver situations where the added resistance can make long paddles harder work and slower because you cannot keep turn over. The height variable is quite important because long levers (arms) are more efficient at moving other long levers (paddle).

Taller people can and should use a longer paddle, but because of all the aforementioned reasons in multisport paddling there are limits to how long is useful. Andrew Martin, perhaps the best long distance paddler in New Zealand, never uses anything longer than 216cm and for multisport races like Coast to Coast he favours 214cm.

## Shaft

There is more to a paddle shaft than meets the eye. Wing paddles normally all come complete with some sort of carbon shaft, but there are three basic constructions to choose. The most popular is uni-directional carbon, which is lightest but also prone to crushing. Carbon twill is stronger and also a tad flexier, which can be a good thing in long paddles as that flex takes a bit of torque of shoulders and arms. Carbon/Kevlar is strongest and stiffest, but also heaviest.

Canoe Sports Tony Free says he has never seen a shaft crush or break in the hands of a multisporter, so their paddles come with the uni-directional carbon. Andrew Martin, however, makes all his paddles with carbon twill, firstly because they are less likely to be damaged in transit and secondly because it's better to be safe than sorry.

The remaining factors to consider regarding paddle shafts is whether to make the shaft adjustable for length and off set and whether you want a locator to indicate hand position. In New Zealand all paddles come with a locator, but again this seems to be a fashion as countries such as South Africa don't bother.

Adjustable shafts can be handy for both storage of your paddle and adapting it to suit water conditions and fitness. It can also help fine-tune the off set of your blades to personal preference.

## Finding Your Perfect Paddle

By now you should have enough information to know that choosing a paddle is about finding what suits you. When doing this consider also what boat you paddle. Wide boats and weaker paddlers need to go for small, shorter blades, especially in longer races or down river, because their boat is harder to move through the water.

Ultimately you would have a variety of paddles for differing conditions, but not everyone has access or funds for a variety of different sized paddles. But an easy way to compromise between race distances and water conditions is using an adjustable shaft with a medium sized blade. This way you can adjust to conditions by shortening or lengthening the shaft. However, some paddlers don't trust adjustable shafts because some have been known to shift while paddling. The latest adjustable shafts, however, seem very reliable.

Remember too, not to be swayed by fashion. Instead, use the tables below as a starting point to find what suits you.

SIDEBAR:

### Guide to Paddle Length

(A rough guide to paddle length for multisport kayaks based on discussions with experts and paddlers)

<i>Paddler</i>	<i>Under 1hr</i>	<i>Over 1hr &amp; DownRiver</i>
1.5m	208cm-212cm	206cm-210cm
1.6m	210cm-214cm	208cm-212cm
1.7m	212cm-216cm	210cm-214cm
1.8m	214cm-218cm	212cm-216cm
1.9m+	216cm+	216cm+

### Blades Big Small & Otherwise

(Blade sizes currently available on NZ market listed in order of size)

<i>Small</i>	<i>Medium</i>	<i>Large</i>
Fusion Small	Legend Champion	Flite Fusion Large
Legend Wild Water	Legend Marathon	Legend Sprint
	Flite 5	Flite 3 Large
	Fusion Medium	
	Canoe Sports Speed Blade	