

Greenland Paddler

The eternal quest for the perfect paddle

By Christopher Crowhurst

When the ancient Inuit first took to their craft along the shores of Greenland their paddles were already influenced by generations of previous paddle carvers. The Inuit migrations from the east and west brought traditions and techniques developed along the shores of the northern Atlantic and Pacific nations. Predominately double-bladed, the Inuit's paddle evolution had been heavily influenced by the stealth and speed necessary for hunting. Modern paddlers' needs have changed – there are few left who subsistence hunt – so it is not surprising that the shape of their paddles has continued to evolve.

The Greenland paddle is a powerful tool. Many people seem only to associate them with kayak rolling. This stereotyping is probably exacerbated by people like me publishing rolling videos and there being few published articles on the use of the paddle for that at which it really excels: paddling forwards and manoeuvring the kayak. Many long-distance paddling records have been set using Greenland paddles; remember the speed record set by Jo O'Brien circumnavigating Vancouver Island? That was set with a Greenland paddle. Remember James Manke's trip down the Grand Canyon last year? That was completed exclusively with a Greenland Paddle. When using the appropriate size and style of Greenland paddle for the conditions, and with the

appropriate training, the Greenland paddle can excel in nearly all environments and conditions. Is it perfect? That is up to you to determine. What I hope to do is make sure you appreciate the nuances of the Greenland paddle design, and hence help you on your quest for the perfect paddle.

Much has been written about the principle that Greenland paddles are sized based upon a set of anthropomorphic rules. These rules are well documented on many of the Traditional paddling websites. Length, width, loom size, shoulder position, etc. are all specified based upon the paddler's body. One point that is frequently overlooked is that traditionally one's kayak was also constructed using a set of anthropomorphic rules; not

only did the paddle match the paddler, but the paddle also matched the kayak. Unless custom building a skin-on-frame kayak using the traditional measurement practices, it is very unlikely that the modern sea kayaker is paddling a kayak of similar proportions. Most modern kayaks are wider, flatter bottomed, shorter and higher decked. The paddler is generally sitting raised up on a comfortable foam or fibreglass seat, a stark contrast to sitting on a layer of animal pelts to protect your bottom from the cold water pressing the qajaq ribs into you. These changes in kayak design have resulted in corresponding changes in paddle design. We have also changed what we are doing in our kayaks. Rock-hopping, surfing, river running, kayak camping, rolling competitions and racing have

all evolved as kayaking has moved from a subsistence life skill to a sport and recreation. As our use of kayaks has changed, so too have the paddles we use.

If you look closely at the archives of most major paddling forums you will find plenty of raging debates questioning if the Greenland paddle is better than a Euro-blade paddle and arguing which is the 'proper paddle' for different tasks, etc. My favourite remarks usually involve people hurling comments at Greenland paddlers asking when was the last time they hunted for seals. I am sure these discussions will go on for as long as there are different designs of paddles in use.

Rather than debate the merits, let's just assume for the rest of this article that you are one of those people who have decided, for whatever reason, that you are going to paddle with a Greenland paddle.

If you are interested in building a replica of an ancient paddle design used by the Inuit to hunt seals, there are many great books published containing the surveys of all the

critical dimensions of paddles that have been recovered by historians; my favourite is *Kayaks of Greenland* by Harvey Golden. Just as building a replica skin-on-frame hunting kayak will not necessarily result in a suitable kayak to fit you, building a replica paddle will not necessarily result in the perfect paddle. For many, the point is not to build perfection: it is simply that recreating history can be a fun and rewarding task.

This this article is written to help those readers among us who want to pay homage to the origins of our paddling sport and use a traditional Greenland paddle, but wish to make it a practical, efficient and comfortable tool.

Size meets purpose and craft

Reduced to its most simple elements there are perhaps three absolutely critical design measurements on a Greenland paddle: overall length, blade width and loom length.

Currently I like to paddle with three different length paddles (84", 86" and 90"); each paddle has a very different mix of dimensions, and each paddle has its own specialisation.

When surfing or rock hopping I like to have a paddle that is shorter and wider (84" length x 3.5" width) than the paddles I use to travel long distances. When in the rocks the extra width creates a greater bite to the paddle earlier in the stroke, requiring less depth of water or immersion into the water and enabling faster turns due to the increased leverage. In the next section I discuss the blade shape that also helps achieve this greater power. In surf, two factors become increasingly important: one is the ability to accelerate rapidly and the other is to transfer the paddle rapidly across the kayak. A wider blade tip aids acceleration, and a shorter paddle is easier to transition between sides due to the decreased momentum of the shorter overall length and the earlier release from the water as you raise the paddle. A longer paddle will be held captive for longer as you have to lever the paddle upwards to remove it from a wave. One challenge that shortening the paddle can create is a decrease in the power of a stern ruder, a common surfing tool. Every change is a compromise, balancing the power you need for turning with the speed you want to be able to transition is necessary to find your perfect paddle. ►





When paddling long distances I prefer to switch to a longer, narrower paddle (90" length x 2.875" width). The narrower blade softens the paddles 'catch' as it enters the water, and this in turn eases any shock on the shoulders with each stroke. The additional length causes the blade to submerge deeper, and this ensures sufficient surface area is submerged to create the power necessary to sustain the forward stroke efficiency.

My everyday paddle is also my favourite rolling paddle (86" length x 3.125" width). I have found this size to be very versatile. A wide and long paddle may help people feel like they can roll better, but this is really misleading as good rolling does not rely on the paddle's surface area for support. I prefer to roll with my regular paddle as it will quickly show me if I am overusing the paddle; the smaller surface area makes it sink quicker if I do start heaving on it.

Before sizing a paddle length it is useful to determine the loom width. Loom width was usually determined by the paddler's hip width plus hand size. I have found that kayak width must also be accommodated if a wider than traditionally dimensioned kayak is being paddled. As the kayak gets wider, the loom needs to grow to accommodate it. Traditional Greenland kayaks were only a couple of inches wider than the hips, so adjust accordingly. My preferred (average) loom size is 20" and this works for my Greenland and British style kayaks, which vary in width from 19 to 21.25". If you want to feel the difference,

grab a short broom handle, sit in your kayak and just perform a fluid paddling stroke motion with your hands set at different widths, and see how they feel for you. Find your sweet spot and measure it. Generally the loom width is the distance between your first and second knuckles on each hand.

I initially sized the length of my paddle by sitting in my kayak with a broom handle and moving as if I was about to start a forward stroke (using the loom width I had previously identified). I wanted a blade length that was poised to enter at the point where my power arm was fully extended forwards, my core was rotated slightly and my upper hand was in its natural stroke position and height. When trying this yourself you need to determine the type of paddle stroke angle you intend to use. A high- or low-angle stroke will substantially vary the height of the upper hand, which in turn affects the angle of the catch phase, which in turn affects the optimum length paddle.

Having found a loom width and overall length, the next major dimension is the blade width. We usually talk about blade width at the widest point. Knowing where and what type of paddling activities you will be engaging in will help you to determine the blade width. As previously discussed, I use multiple widths to suit the differing environments: don't expect to find one size that does all. When considering rolling with a Greenland paddle, it is important to ensure that the blade comfortably fits across your palm between thumb and fingers

to allow the high and low brace (layback and forward) rolls to be completed in comfort. If the paddle is too wide you will end up gripping the edge, which can cause the blade to dive during rolls. Optimum control is maintained when the blade width comfortably matches your grip.

Blade perimeter shape

Greenland paddles taper from the tip to the loom, some in a straight line, some with a concave curve and some with a convex curve. Paddle power under acceleration is substantially affected by the rate of growth of surface area as the paddle is submerged. To maximise acceleration in the surf and turning power in rock gardens, many people (myself included) like to keep the first 6-8" of the blade the same width and then taper in a convex shape down to the loom shoulders. For my long-distance paddle, where I am trying to minimise shock and make the catch gentler, I like the paddle to taper in nearly a straight line.

Tip shape

Just like the many faces of religion there are many tip shapes from semi-circular to square and everything in between. The tip shape seems to have various affects: it changes the noise the paddle makes when entering the water; it slightly varies the surface area; and it affects the way the water flows around the paddle during the power phase of the stroke. Some people claim tip shape can also affect paddle flutter, but I think the overall blade

profile has a bigger impact on flutter. There are also aesthetic impacts. Personally I like a rounded tip unless I am looking for maximum power, when I will go for a square tip with rounded corners.

Blade profile

The blade profile generally varies along the length of the blade. A flatter profile at the tip seems to allow the paddle to enter the water quietly and efficiently. A diamond shape near the loom's shoulders helps make the blade angle (or cant) when gripped, which helps maintain the traditional strokes, especially for beginners. When carving in wood it is important to ensure there is sufficient wood along the length of the blade to maintain its strength. Thin blade profiles can be more vulnerable to being bashed on rocks, so again you may need to adjust your design to suit the conditions.

When paddled the way most Inuit seem to have used the paddles, the blade is canted. The blade slices through the water so it would seem to make the most sense to create a foil-like cross-section to maintain laminar flow over the blade during the stroke, as with a wing paddle. The paddle blades are symmetrical in cross-section so that limits the ability to create a foil, but creating a hydro-dynamically efficient shape can have a great deal of impact on how the paddle feels.

The angle of attack of the paddle's power face will affect the angle that the paddle needs to be held at during the power phase of the stroke. When people using a new paddle describe it as 'fluttering', it usually means they are holding it at an angle that it was not designed to accommodate. By trying a few paddles of different cross-section you will be able to find the shape that works well at the angle you like to hold the paddle.

Shoulder shape

The shoulders of the paddle affect the comfort of the paddle as well as the angle at which you hold it. You should not have any pressure points when paddling; under normal conditions, blisters should not appear on your fingers or palms. Many paddle makers have become renowned for their ability to create soft comfortable shoulders. The value of these builders' experience should not be underestimated. Poor shoulders can ruin a paddle.

Another option to consider as you use Greenland paddles is to have no shoulders.

I like paddling with shoulder-less paddles as it allows for rapid transition between sides in surf and allows me to change to a sliding stroke very easily. Some people, especially when learning, prefer the solid feel shoulders give them as it removes any doubt about where they are holding the paddle and when it is correctly located for their strokes or rolls.

Loom cross-section

Looms generally come in three shapes: square, oval and round. Square and oval looms tend to cause the paddle to sit at an angle in your hands when you grip it, which can provide directional stability to the blades. Round looms tend to have no stabilizing effect, but they can be comfortable at any angle. The loom cross-section should be sized so that your thumb and forefinger can comfortably circle the shaft and your little finger is not strained. Some square shafts can be uncomfortable if you are not paddling with a canted stroke, so make sure you know how you are going to paddle before you pick the loom shape.

Material

Wood and bone are the traditional materials used to make paddles. For the average amateur the material of choice is wood. Nice tight grain cedar with no knots is my preference, but many other types of wood have been used successfully. Spruce has been used to make some very strong paddles; cedar is used to make very light paddles. There is always a compromise between the availability of materials and the desired design. Many people either fit hardwood tips to replace the traditional bone, and some dip the paddle tips in epoxy or other materials to reinforce them. I prefer just to sand the raw ends of the paddle if they get beat up, and rub some Tung oil into them to keep them looking beautiful and repel the water.

There are many commercial makers of Greenland paddles, and the predominant materials they use are wood and carbon-fibre. The advances in carbon-fibre technology allow paddles to be made that cannot be reliably constructed in wood. Ultra-fine thin blades preferred by some racers would quickly become damaged if made of wood, but the strength of carbon and epoxy allows for some very elegant designs. The carbon-fibre paddles are generally very consistent due to their moulding process. The flexibility of the paddles can also be changed by altering the

carbon composition, allowing them to flex in a similar fashion to wood or to be as rigid as steel. You can now choose.

Buying a paddle

I have met many people who think they have their perfect paddle. Many of these people have never had the luxury of trying and experimenting with paddles to understand the impact of the design shapes and sizes, and how they can make the difference between a good paddle and a great paddle.

Prior to investing in a commercial paddle I recommend you either try making a few paddles to understand what size and shape suits you, your paddling and your kayak, or borrow as many paddles as you can from different paddlers and find out how they feel when you put them to use. Simply picking up a Greenland paddle off a rack at a store or on a website and expecting it to be awesome is unlikely to result in a happy relationship together in the long term.

The quality of commercial paddles, both wood and carbon, varies considerably. Some manufacturers take great pride in creating works of art. Some are highly skilled at timber selection, a vital part of the wooden paddle-building process. Some are low cost, some are expensive. Some come in a whole range of sizes, some vary very little. Each is a compromise. Ask your paddling friends and online network for recommendations, and read online reviews (I have published many). There are some true craftspeople out there who are able to make very special paddles, maybe even your perfect paddle. 📧

About the author

Christopher Crowhurst, an ex-pat Brit now living in Minnesota, USA is slightly obsessed with Greenland rolling. In 2010 he founded *Qajaq Rolls*, a philanthropic business that promotes the passing on of the traditional art of Greenland style kayak (qajaq) rolling. Christopher has developed video, diagrams and written instruction to help paddlers learn the traditional Greenland rolls. During 2010 he self-published *Rolling with Sticks*, a waterproof guide book of 25 Greenland-style rolls, and followed this up with a companion DVD. In 2011 he used the business to establish and fund a program of free rolling clinics, providing hands-on training for paddlers looking to develop their Greenland-style kayak rolls. You can contact Christopher through his website: <http://qajaqrolls.com>

