

The PFD Knife: Don't Leave Home Without It

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<http://www.nswseakayaker.asn.au/magazine/47/knive.htm>

Why is it that some people won't leave home without it, while others heap derision on those that strap them to their chest? The humble knife. More than 3,000 years ago our unshaven forbears used sharp fragments of flint and sharpened bone as tools.

This puts archeologists into a flat spin, apparently demonstrating that the unwashed and unshaven had bigger front brains than their banana munching buddies swinging in the trees.

One has to ask the question; does the sea kayaker without a PFD knife have a smaller brain than their recently arboreal-expatriated unshaven forbears? I suspect so. History is full of anecdotes and survival stories that highlight that the simple knife can save a life and that the lack thereof often contributes to an untidy and untimely demise. Is paddling a sea kayak potentially risky business? Apparently so; **WARNING: SEA KAYAKING CAN BE FATAL...** so says the NSWSKC trip waiver in biggish letters.

No doubt some experienced sea kayaker will argue there are many reasons why either you do not need a knife or it is OK to carry the knife in or on the kayak. It's what you can't predict that makes the best survival test. After each novel sea kayak death is analyzed we try to avoid a repeat performance. I opt to avoid being a test case.

A Canadian Air Force C130 crashed many years ago in a ubiquitous cold area in the north of Canada. The aircraft had broken up but did not burn. Several people survived the initial crash but were injured. The aircraft had survival food, thermal clothes, sleeping bags and shelter, stored in thick vacuum packed plastic bags. They all died of exposure. The survivors could not open the vacuum plastic packs due to the lack of a knife or suitable alternative. Bit of an oversight but no one foresaw the scenario. Standard survival dictum in order of priority: Protection, Location, Water, Food. A space blanket, clothes and a knife are right up there on the protection list.

Can't help quoting another military dictum. Let's face it, defense force personnel are paid your tax dollars to be professional survivors in the most hostile circumstances; 'Live out of you pack, fight out of your webbing and survive out of your pockets'. Roughly translated into sea-kayaker; the food and wine is stored in the front and rear hatches. The tow rope, day food & water, camera, wind jacket, etc is stored in the day hatch/deck/under deck. The knife, EPIRB, whistle, mirror, compass (and in my case, flares, strobe, marker dye, space blanket, money, torch and fire starter) are in or on the PFD. If the boat breaks in the surf quite a bit of gear can be lost. If the boat is lost...

At work I regularly hear, “That will never happen to me” become “Never thought that would happen to me.”

In the analysis of a kite-sailing mishap that ended in the death of the kayaker, US Sea Kayaker noted in their August 2001 issue, “If the wind builds while the kite is in the air, it may be very difficult - if not impossible - to reel in ... a tethered knife with a blunt point and edge serration should always be available...”

In April 2000, US Sea Kayaker said, “The great white turned slightly toward the south and was now facing the kayak... it was within an arm's reach, and its pig black eye was looking right at me. I was two miles from shore, in a kayak...” Yeah, yeah, we all know that Great White sharks are maligned, misunderstood, caring creatures that would make a great pet for the kids.

The Sydney Morning Herald says, “Attacks on people are a result of mistaken identity or simple curiosity (a shark with no hands uses its mouth to investigate an object, often with dire consequences).”

Would a knife help protect you against a 'curious' shark? I don't know but I would like the option.

Give me a shark over a crocodile any day. A hungry croc will view a sea kayaker as more than a curiosity. More like a Jaffa, crunchy on the outside, soft and chewy on the inside. Issue 40 of NSW Sea Kayaker: “It was a big crocodile, and it was trying to sweep Arunas off his feet in a death-roll... he put his hands in the croc's mouth, attempting to prise open the jaws... its teeth firmly embedded in Aruna's right leg. I straddled the croc's back and put my arms around its smooth hard belly and hung on.” Dave Winkworth clearly has a bear hug to end all bear hugs, not to mention bottles of bravery. He wasn't wearing a PFD on the shore at the time but if a knife was to hand the option of stabbing the croc in the eye would work better for my muscularly challenged body.

Probably the most likely reason to immediately need a knife while kayaking is to cut rope or line. Tow lines gone wrong, heavy fishing line with heavy fish, sail rig, paddle or body tethers, spectra rudder cables (unless you use stainless, in which case you had better have wire cutters with you). Even a damaged composite or plastic hull will succumb to a knife with a serrated edge if you need to finish removing the nose or tail kayak 'dag'. How about breaking your boat in the surf and having bits of deck line, sail line, rudder spectra, and paddle leash with half a boat all in the same soup as you. Something gets wrapped around your leg, neck, body ... never going to happen, I guess ...

“Something went tragically wrong for the avid fisherman ... and not a novice ... was found dead, upside-down and still seated in his kayak. He had been paddling a normal sea touring kayak with a typical large keyhole cockpit ... He was wearing a PFD ... his poles were still deployed ... A miniature carabineer was also found clipped to a line running from bow to stern ... the carabineer was attached to his PFD by a short line ... the investigators strongly indicate this arrangement was a significant contributory factor to his inability to wet exit ... a good

survival knife should always be carried and accessible.” So said Doug Lloyd in issue 40 of NSW Sea Kayaker.

So, having warmed your interest to the concept of securing a knife to your PFD, what sort of knife should you consider. Firstly, does it matter from what the blade and handle are constructed? Exposure to salt water and prying open oysters is a sure-fire way to terminally test a knife made of the wrong material. Most people would accept that 'stainless' steel is a good idea for knife to be used in and around water. However, all steels can rust. A very high carbon steel alloy that holds a great edge and can be found on expensive hunting knives would be inappropriate for a utility PFD knife.

Carbon is added to iron to make steel. Greater than 0.5% carbon is classed as high carbon steel and this appears to be the threshold for knife-grade steel. All stainless steels have at least 13% Chromium. Nickel can be added for strength, corrosion resistance and toughness. Other additives are Manganese (grain structure and hardness), Molybdenum (prevent brittleness and maintain high temperature strength), Silicon (strength), Tungsten (wear resistance) and Vanadium (wear resistance and hardness).

Stainless steel with less than 0.5% carbon is very soft but is also very stain resistant (corrosion resistant). Often used for diving knives and inexpensive knives but too soft to be used as a useful utility knife. Clever (and more expensive) stainless alloys with more than 0.5% can provide an acceptable degree of hardness whilst maintaining useful corrosion resistance. However, increasing carbon content will trade off corrosion resistance, 0.65% to 0.75% seems to be about right for an acceptable utility knife with good 'stainless' properties. You will not find a good blade on a cheap knife.

Good quality steel is one of three factors that determine knife performance. The blade profile is also important. Aspects to consider here are the belly (curved, re-curved, little belly), the point (piercing or blunt), blade thickness (strength and cutting ability), edge thickness (cutting ability and edge strength) and bevel edge grind (hollow, chisel, sabre, flat, convex). The edge of the knife can be either plain or serrated. Heat treatment is the final and possibly the most important aspect of knife performance. A good heat treatment on lesser steel will often result in a blade that out performs better steel with an inferior heat treatment. Unfortunately, heat treatment cannot be assessed by eye but may go some way to explain the price difference between knives made from the same steel alloy.

One of the most basic choices in blade design is whether to chose a plain or serrated edge to the blade. As you would expect there are advantages and disadvantages to each with the debate akin to the rudder-equipped versus rudderless kayak. To simplify the discussion one can consider two cutting functions of a knife, push cuts and slicing cuts. Examples where a push cut is used are shaving one's face, dicing a carrot, peeling an apple, skinning an animal, chopping wood; i.e. pushing the blade through the material. A plain edge is generally better for push cuts. A plain edge is also better for fine control.

Slicing cuts are performed by dragging the blade across the item to be cut. Dragging a knife across a tomato or sawing wood are examples. Serration works well on hard or tough surfaces

where the serration tends to grab the surface. Some of the power of the serrated edge is due to the form alone; thus, even a dull serrated edge will perform slicing well. A plain edge needs to have a more razor-like finish to push cut well.

An example to highlight the difference is the tomato. Unless the plain blade is razor sharp a tomato will squash with a push cut. However, an old serrated bread knife will still perform well in a slicing/sawing motion. Similarly, a hacksaw is blunt to the hand but cuts steel, a plain blade cuts your hand but will scratch steel at best.

Sharpening a plain blade is relatively easy but usually needs to be performed regularly. A serrated edge requires attention a lot less frequently but requires a special sharpening jig. To get the best of both worlds, or to compromise the best of both, there are knives with a combination of plain and serrated edges. Typically, the 50-60% of the blade nearest the tip is plain while the back 40-50% is serrated. A blade length of 80 mm may only provide 30 mm of serrated edge which some consider borderline useful. Nevertheless, a partially serrated blade of 75 mm would be the minimum to consider. There are also double edge knives with a plain and serrated edge.

When it comes to cutting rope or sawing through damaged composite hulls the serrated edge comes into its own. The Spyderco folding climbing knives are serrated and cut 13 mm climbing rope like butter. A plain blade hook knife for skydiving also cuts webbing and lines like butter but the blade has a thin razor like edge totally unsuited to a general utility knife. My feeling is that a PFD knife should be at least partially serrated.

The next major consideration is whether to have a folding or fixed blade. In my opinion a fixed blade is the only option for a PFD knife. The folding knives are elegant, give you a knife with half the carry length and don't require a separate sheath. The integral belt clip means that the knife can be carried on the belt, PFD or boot with ease. However, whilst many are designed to be opened with one hand, they are not ready to go. You have to locate the knife, remove it from the PFD and deploy it before you are ready to engage the enemy (be that spectra, paddle leash or crocodile). The pivot mechanism must be prone to corrosion in even the best maintained knife which increases the risk of a difficult opening. A fixed blade is fail safe and is easy to clean and maintain. Many knives have sheaths designed to be attached to the PFD and one only has to locate the handle and pull the knife away. Generally, the handles are ergonomically better on the fixed blade knives and the cost should be less for the equivalent quality blade.

The handles and sheath need to be some form of synthetic. Zytel, Kydex, ABS, Nylon and Kraton appear to be common materials used. Kraton has a soft feel that is said to be easy to grip with wet hands. Other materials are molded in such a fashion as to provide good grip. Some knives on the market are provided with a leather sheath and this limits their use for sea kayaking.

Various mechanisms are used to secure the knife into the sheath so that it does not deploy inadvertently. They all seem effective enough. However, once pulled out, deliberately or not, if the knife is dropped it will be lost. The option of a lanyard bothers me. The lanyard may deploy the knife by mistake in the first instance. A tethered and uncontrolled knife during a roll or brisk brace does not appeal to me either. I simply attach the knife to a small, hollow plastic float that the yachties use for their car keys. This aids in locating the knife if upside down and

disorientated. The knife will float nearby if dropped rather than flapping about tethered in front of your face.

So, what does all this mean when it comes choosing a weapon to strap onto the PFD. To be a useful utility knife and maintain the option of a partially serrated blade the blade length probably needs to be at least 70 – 75 mm (3”). A blade much longer than 100 mm (4”) and the overall knife length will leave you with the possibility of being called "Rambo", aside from the fact the knife will not fit on the PFD. Blades in this range should result in a knife with an overall length 20 mm either side of 180 mm.

A blade edge of half serrated/half plain or fully serrated is the probably the best compromise for a kayaking knife. Examples of appropriate steel alloys for PFD utility knives are 440A, 440B and AUS-6, AUS-8. 420 steel has less than 0.5% carbon and is quite a soft steel but with excellent corrosion resistance as a tradeoff. Likely to be found on cheaper knives and some diving knives.

The point of the knife comes down to personal preference. The 'clip point' is considered a good all-round shape and is what many people imagine when they think of a knife point. There are blunted styles, either rounded or chisel. This will give a strong tip that can be used for prying or scraping but less effective for stabbing / piercing type actions. A blunt point may decrease injury to equipment and yourself if you lose control of the knife. I personally like a point that can be used for stabbing, reserving the right to poke wayward sharks and crocs in the eye should the need arise. Most 'rescue' knives have some form of blunt tip.

I have no particular affinity for any knife maker so a quick review of knife web pages located several good examples of knives that would suit a PFD for sea kayaking. The [Cold Steel Para Edge](#) is at the small and light end of the range of suitable PFD knives. Three different point types (clip, tanto, or double edge), 50:50 serrated to plain 75 mm blade. AUS-6A stainless steel, Kraton handle and very light at 1.3 oz.

[Gerber](#) have a range of fixed blade River Knives that are designed specifically for river/rafting/kayaking. The blades are made from 'high carbon' stainless steel (>0.5%) but not otherwise specified. The River Guide has a unique design with either a fully serrated chisel tip blade or a sharp drop point blade with mixed serrated and plain edge. Both have a line cutting hook at the rear of the blade. The blade is 85 mm long, 210 mm overall and weighs 8 oz. A button on the sheath pushes through a large hole in the handle to release the knife. This seems to be quite a secure system.

The Gerber River Shorty and River Runner have either a mixed or plain 75 mm blade and an overall length of 170 mm. The serrated blade has a blunt tip and the serrated-plain edge a sharp point. Weight is 3.9 oz. The handle is ABS and the knife simply pulls out of the sheath without the need to locate and press any locking mechanism.

The Gerber Expedition I and Expedition II have a single partially serrated edge or double edge, serrated on one edge, plain on the other. The handle is Kraton rubber and the locking sheath is made from glass filled nylon. Like the River Guide, the Expedition has a 85 mm blade and 210

mm overall length. Weight is also 8 oz. The black handle, black blade option will appeal to the tactically minded paddler.

In the end, personal preference for one feature or another will sell you on which knife to carry. As long as you roughly choose from the above criteria it really doesn't matter what knife is on your PFD as long there is a knife on your PFD. A good quality knife is one of the most important survival tools you can carry. However, if you can't locate your knife when upside down with your eyes closed then it's no longer a survival tool, it's ballast.

References

- [Spyderco](#)
- www.knives.com
- www.bladeforums.com

Editor's note: Remember to comply with laws pertaining to the carrying of edged weapons in the areas you wish to paddle. Further information on knife laws can be obtained from the Editor.