Rapid Education –

Key concepts in WW kayaking

As I said last issue, being an effective white water kayaker is all about understanding and reflection. Last issue, we looked at developing an understanding of what we actually do and how to analyse and reflect on our actions. This issue, we will look at understanding the river itself.

Using the force

Photo 4: Surface stopper


Good stopper or bad stopper?

"There are a million and one stoppers, each with its' own character. Some are OK, some are incredibly dangerous"

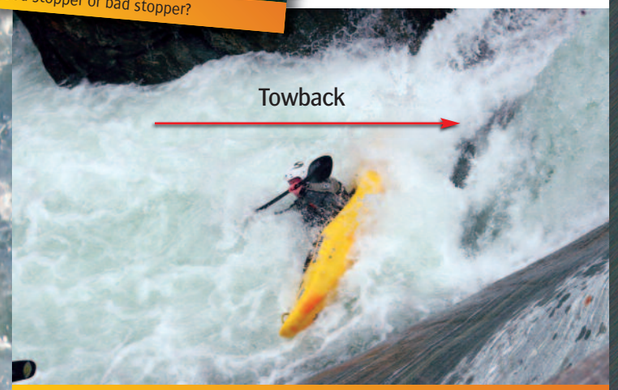

Photo 5: Deep recirculating stopper

Using the force...
Ask yourself this question: What is stronger: the river or your arm muscles? I think we all agree on this one. The river is way stronger than the individual. It's like 'the force' in Star Wars. The Jedi Knights use the force to gain their power. As white water kayakers, we need to follow their example and use the force of the river. Beware – fighting the force leads to the dark (and wet) side...

So how can we use the force of the river? Mainly, as kayakers, we interact with the force to move us towards our chosen destination on the river. In order to do this effectively, we must be able to see where the force is heading. Firstly though, we need to appreciate a few rules about the force of the river:

1: The steeper a river, the faster the river will flow and the more powerful the force will be.
2: If the river flows through a constriction, the faster the flow and the more powerful the force.
3: When a river bends, the flow heads to the outside of the bend, hence the force will be stronger there.
4: Perhaps most important of all – the river is a 3D environment. What happens on the surface is caused by the shape of the river bed. Have a look at the 'Hydrotopography' chapter in 'Kayak' by William Nealy – it explains it really well.

These rules are pretty much constant worldwide. Now, how do we work out where the flow is heading? Try this exercise...

Go to a flat but moving stretch of river. Stand on the bank and draw an imaginary line from one bank to the other. I often use my paddle to indicate the line. Now, imagine a giant clock face on the surface of the river, 12 o'clock being upstream. What time is the water flowing **towards** along the line? Is it all flowing towards the same time or does it vary along the line?

Now try this on some slightly more interesting bits of water. Think what time the water is flowing towards. It's important to develop the habit of looking at where different parts of the river are flowing towards. The main mistake many kayakers make is to assume that the river is one big chunk of water flowing downstream. This is generally the case but to be truly effective, we need to be more precise. Sometimes the river flows down and across, at a variety of angles.

The main idea of looking at the river to see where different parts of the flow are heading towards can be complemented by understanding certain features that appear regularly.


Photo 1: Upstream and downstream v


Photo 2: Standing wave


Photo 3: Crossing using wave

Upstream and downstream 'v's
These are dead useful to white water kayakers, serving as indicators of where and where not to go. A downstream v is formed when the water is forced through a constriction. The water makes a dark v shape, pointing downstream. This indicates the deep water flowing down the river. An upstream v, however, is formed by a rock just below the surface. The water makes a white frothy v pointing upstream. Have a look at photo 1.

Standing waves
These are formed by a layer of fast moving water flowing over a layer of slow moving or still water, or an obstruction. Have a look at photo 2.

Standing waves can be immensely useful to white water boaters. If they are at an angle to the flow, we can use them to push us towards their downstream end. Handy if we need to cross the river, as we let the flow do all the work. Have a look at photo 3.

Stoppers
A stopper is formed when water suddenly falls. When the water hits the river bed, not all of it flows downstream. The water resurfaces and flows upstream, towards the base of the drop. There are a million and one stoppers, each with its own character. Some are OK, some are incredibly dangerous.

Stoppers tend to fall into two broad types – 'surface' and 'deep'. Surface stoppers are really frothy, noisy and white. This is because the flow is recirculating near the surface, mixing forcibly with air. Have a look at the example in photo 4.

Alternatively, we have deep stoppers. Deep stoppers appear calm and quiet. This is because all the recirculation is happening below the surface. Have a look at photo 5:

So how do we tell a nice hole from one that will give you a shoeing? There are a few things to consider. In a surface hole, loads of water is flowing under the recirculation. Hence, if you swim, you tend to go deep and reappear downstream. In a deep hole, no water is flowing under the recirculation. Thus, if you swim, you are unlikely to get washed out that easily. Bad news!

The length of the recirculating flow, or tow back, will determine how easy it is to get through the stopper. The longer the tow back, the harder it is to get through.

The steeper the ramp of water flowing into the stopper, the more of a drubbing it will give you. Are the ends open, so you can paddle out of them, or blocked by an obstruction?

Remember – if a stopper is at an angle to the flow, most of the water will exit it at the downstream end.

Cushion waves
When water hits an obstruction, like a rock, it rebounds off of it, forming a cushion wave. Have a look at photo 6.

Boaters can use this water to push themselves away from obstacles or they can add their power to that of the cushion and ride it like a 'wall of death' motor cyclist to get a dynamic direction change with minimal effort. This is known as 'flare'. More on those later...

Drops
The river is 3D, remember? That means we are going to be faced with drops, or aspect changes, if you will. Drops as in photo 7, come in many forms but we'll have a look at how to tackle them later on...


Photo 6: Flaring a cushion wave

To summarise:
As boaters, we must be able to understand the river and use its' power to our advantage. If we try to fight the river all the time, we will lose. Using the river equates to interacting with selected bits of the flow to move us to where we want to be. In order to do that, we need to be able to work out where the river is flowing and spot certain recurring features.

OK, next time, we'll be looking at balance. Take care folks...●


Photo 7: Dave running a drop

Tom Parker –
Coaching and Guiding