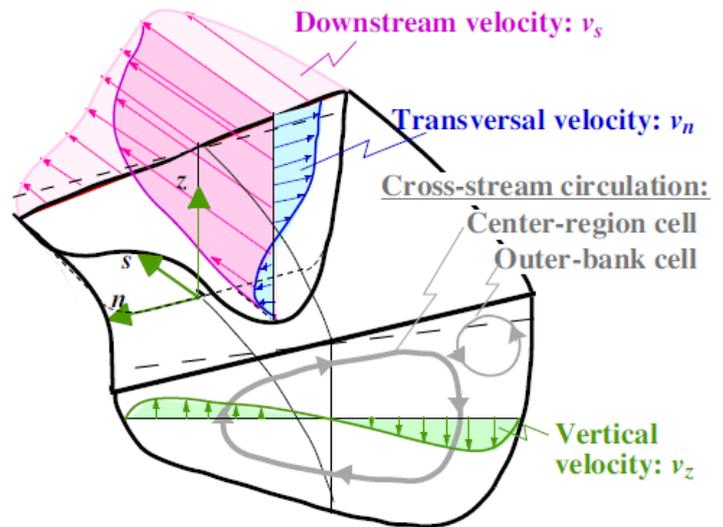


Safety Alert - Flow around bends in rivers

The flow of water around bends in rivers is highly complex but a basic understanding will help rowers to avoid some of the hazards it poses.

In straight rivers, the fastest flow is in the middle of the river and around bends the water tends to flow fastest and be deepest around the outer edge of the bend. In other words, the position of the fastest surface flow is displaced towards the outer edge of the bend. However, the flow around bends is even more complex.

In addition to the normal downstream movement of water, there is also a component of flow across the river. On the surface this is from the inner part of the bend to the outer, but close to the river bed the flow is in the opposite direction. This, in effect, becomes a circulation. There may also be a small circulation in the opposite direction close to the outer bank.



If this circulatory flow is combined with the downstream flow then the water can be thought of as flowing in a helical or spiral pattern. In effect, the water corkscrews down the river.

Rowing boats operate on the surface of a river and will only be affected by the surface flow. If a boat is positioned on the outside of a bend then it will be pushed downstream and further towards the outer edge of the bend.

This effect will be more pronounced when the boat speed is less than stream speed. In other words, take great care if you are on the outer edge of a bend, upstream of an obstruction and do not stop there.

The diagram is taken from FLOW AROUND BENDS IN RIVERS by W.H. Graf, K. Blanckaert (<https://www.tib.eu/en/search/id/BLCP%3ACN045844018/Flow-around-bends-in-rivers/>).

Do not get trapped on the outer edge of bends.

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