

## WIND, WAVES, CURRENT: A PERSPECTIVE FOR PADDLERS

*The report says: Wind 10 – 20 mph, 2 to 3 foot waves, 1 – 3 knot current, or maybe 10, 000 cfs, gauge 4 feet, gradient 50 feet per mile.  
What does this mean to us as paddlers?*

**Wind** power or push is what builds waves and effects boat handling.

A 10 knot winds force is doubled by a 14.2 knot wind and quadrupled by a 20 knot wind. In CG District 5, an 18 knot wind usually means a Small Craft Advisory, other CG Districts set their own, perhaps some higher.

Most intermediate touring paddlers paddle at about 3 knots, but if paddling into a 15 knot headwind, the speed made good drops to 2 knots and at 25 knots, drops to 1 knot made good or 1 nautical mile per hour. A routine 6 mile paddle home with little wind, would in theory take 2 hours, but with 25 knot head winds, an exhausting 6 hours of steady paddling.

**Waves (open water)** are developed by far away wind and generate swell which is generally not of serious consequence as a hazard to kayakers. Waves developed by localized wind travel across the water, often on top of any swell and are generally steeper than swell, so may make kayakers feel unstable, particularly when coming from abeam (side), or following (behind). Waves that are a foot or less, are not consequential, when they get chest, shoulder, head and over head, to a seated kayaker they may well cause unease depending on experience level.

**River waves** are stationary and are made when fast moving water hits slower moving water. When they are steep enough to fall back on themselves they are called stopper waves as they can stop a boat and hold it temporarily. These are different from holes/hydraulics.

The more gradient (slope of the river bed) the faster moving and pushier the water, if you double gradient you quadruple the push.

CFS is the measurement in cubic feet of water past a point (a cubic foot of water is a little bigger than a basketball) think about 3000 basketballs a second, when you double cfs you triple the push. This makes sense only if you have experienced rivers at specific gradients and flows such as a 1000 cfs flow on a 40 foot gradient feels like X, so 2000 cfs on the same gradient is 3 X etc.

**Currents** are pretty easy to comprehend as they have a direct 1 to 1 effect. If you paddle at a 3 knot speed into a 2 knot current, your speed made good will be 1 knot. If you paddle at a 3 knot speed you cannot paddle forward in a 3 knot current. If you paddled directly across a 3 knot current for one hour, you would be down current 3 miles from your start point.

At 1 knot an object in that current moves 100 feet per minute, at 1 mile per hour, 88 feet per minute. Simply multiply as the current speed increases. 2 mph means 88 feet in 30 seconds. Think how this could be meaningful in a river being washed downstream, or being taken away from shore by tidal current. As a rule of thumb a 16 foot kayak or canoe will pass an object in 5 seconds in a 2 mph current. A stick will drift almost 60 feet in 10 seconds in a 4 mph stream. **THINK ABOUT THAT.**

I hope this is useful information and provides perspective for your paddling safety and fun...

\*Information on wind effects are from "Fundamentals of Kayak Navigation", by David Burch.