

of this channel appears in Fig 9.5.) The yacht went through the narrows on flat water and only encountered waves at the downstream end of the jet. That was because the small waves were fairly short and were coming in the opposite direction, from the open sea. Where they met the fast current, they were unable to progress further upstream.

Waves with currents

When waves propagate on to a current that is going in the same direction, the foreshortening effect is reversed and their wavelength increases, so that the sea normally becomes calmer. However, if waves are moving along with a current that then pours into an area of still water, the sea state again changes for the

worse. As the waves enter the still water, the effect is much as if they had met an adverse current. The wave train foreshortens abruptly, so that the waves become steeper and sometimes appear to fall over themselves in an untidy mess.

Their forward motion over the ground may not be completely halted but they become very irregular and usually have a clapotic motion with pointed crests, indicating that part of the wave energy is being reflected. This effect is seen in Photo 6.3, where small waves are riding through a narrow gap, on a strong current, which then meets the still water on the downstream side of the gap. Fig 6.2 shows the situation diagrammatically. This is at the same narrow channel as in Photo 6.2, in almost identical weather and sea conditions, but the tide is flowing in the opposite direction.

6.3 Waves with tide. Some waves are reflecting from the turbulent water alongside the tongue of strong current, to create a mass of brittle, clapotic crests. (Jack Sound)

Overfalls at shoals

A patch of rougher water will often appear where a current flows across a submerged bank or ridge. There is usually an abrupt transformation in the wave pattern, and a relatively smooth sea may

