

REVIVING A SIGNATURE ATTRACTION

THE REVERSING FALLS: WHY THE RAPIDS REVERSE pages 26-27

Dan Glenn

Most people think of the earth as a stable place – yet ice caps melt and freeze, land and water levels rise and fall, continents drift, volcanoes erupt, and soil erodes. The Reversing Rapids can provide visual evidence of the volatility of our dynamic planet.

The tidal action actually originates in the Southern Indian Ocean with warm currents sweeping around the Cape of Good Hope and northward into the Bay of Fundy forming the largest tides in the world. At this longitude the gravitational pull from the moon and the funnel-shaped bay drives the rushing ocean tides, which in Saint John rise 8.7 metres. As the bay and river narrow, the waters are further squeezed; this forces the water higher up shore.

The 725-km long St. John River empties into the Bay of Fundy at low tide. The full flow of the river thunders through the narrow gorge and over an underwater ledge that hides 11 metres below the surface. The ledge sits on top of a 60 metre pool or “flooded waterfall”. The water then boils and churns as mighty whirlpools. For over 4,000 years aboriginal peoples have used a portage route to avoid the deadly waters. But for daredevil kayakers, the waters form some of the most challenging paddling in the world.

As the bay tides begin to rise, the incoming water begins to miraculously slow the river flow until finally it stops completely. This twenty minute period is called slack tide, when the river looks like a lake and it is safe to navigate the “rapids”. Then the bay tides begin to rise above the river, reversing the flow with warmer salt water riding above the cooler fresh water impacting the river as far inland as Fredericton, over 130 km away.

At high tide in Saint John the tide is 4.4 metres above the river level. Then the tides begin to fall, until they form another twenty minute slack tide. They continue to drop and the river again flows into the bay, and the rapids come back to their peak. The entire cycle takes twelve hours.