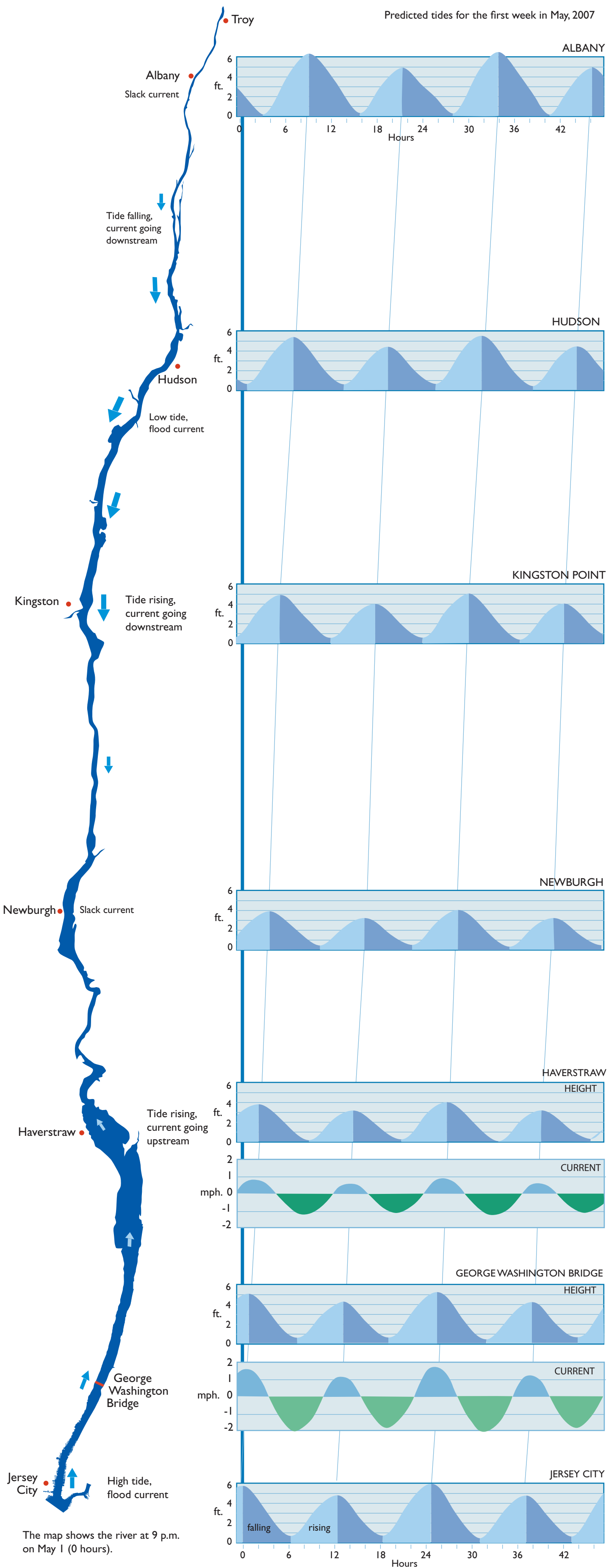


TIDAL CYCLES IN THE HUDSON ESTUARY



Tides and currents in the Hudson estuary, for the first few days in May, 2007, starting with a high tide at the mouth of the river at about 9 p.m. on the first (0 hours, dark blue reference line, connecting graphs.) Besides the high tide at Jersey City there is a low tide between Hudson and Kingston, and a half tide at Troy. The river thus contains three-quarters of a tidal wave, and so has two different kinds of currents: upstream currents in the lower part and downstream ones in the upper. The tide progresses up the river, reaching Albany

about 9 hours later. As it travels its height changes. The tidal wave is 6 feet high at the mouth, 4 feet high in the middle river, and 6 feet high again at Albany.

Because the river's freshwater flow opposes the incoming tide and adds to the outgoing one, the curves of tide and current for the upper river are asymmetric. The tide rises just slightly faster than it ebbs; the outgoing currents are stronger, and last longer, than the incoming ones.