ABSTRACT

A Physical Oceanographic Investigaton of the
Inner Shelf Waters East of Hellshire, Jamaica

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There is a prevailing coastal current flowing out of the Kingston Harbour Mouth and parallel to the Hellshire coastline and South Ship Channel. The impetus for flow is a function of estuarine dynamics mainly within the Outer Harbour region of Kingston Harbour, and the influence of southeasterly sea breezes, which redistribute the waters of the Harbour thereby enhancing flow southwards out through the Harbour Mouth. The Rio Cobre river flows out into Hunts Bay, and is the main source of low-salinity water for the Outer Harbour and the adjacent coastal waters. Average salinities in the western Harbour Mouth recorded during drier periods of the year were 34.50, while in the east salinities have reached a high of 36.00. During the wetter months salinities were reduced to lows of 25.00. Values generally increase due south and east of the Harbour Mouth to measured highs of between 35.00 and 36.00, as a result of the low salinity water being diluted as it flows out to sea.

Speeds in this surface layer vary with freshwater output as the maximum computed speed, based on geostrophic calculations, reached 1.20 $m\ s^{-1}$ in the Harbour Mouth during the June 1986 floodrains.

This low-salinity surface layer will affect the coastal area, especially during heavy rains, when its surface expression is well developed and also because of large reductions in salinity and water transparency and the associated heavy sediment and pollutant load, all of which may prove injurious to the existing biota, if sustained for prolonged periods, within the Hellshire coastal area.