

An Investigation of the Physical Parameters of Water Quality associated with Mangrove Stands along West Coast Berbice

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Both physical and chemical properties are known to affect the development, growth, and productivity of mangroves. There are seventy-three known mangrove species and hybrids worldwide, and considerable variability exists among species with respect to how they survive in different conditions. Mangroves are well known for their ability to withstand high saline conditions and survive in areas with low water quality. Studies have been conducted in some tropical and sub-tropical countries where mangroves are found. However, a study on how specific water quality parameters affect coastal mangrove stands is needed for Guyana. This study assessed the physical water quality parameters pH, dissolved oxygen, turbidity, and temperature to determine their association with mangrove stand classifications along the West Coast of Berbice. Samples were obtained from pools of water within mangrove stands, and at locations in the central discharge façade canal (which is fed by the coastal rice lands and community lands) along which the mangrove stands are found, near the canal mouth. The stands were classified according to whether mangroves were old, new, or receding, after which water quality was measured to determine whether a difference may have occurred due to the presence of particular stands. It was found that the parameters measured were affected by the mangrove stands, but were not necessarily affecting them. The waters servicing the mangrove forests of the West Coast of Berbice did not possess concentrations high or low enough to either have a positive or negative impact on the mangroves. Water quality in mangrove stands is an important issue that should not be overlooked, and this preliminary study can be extended to further investigate the relationship between water quality and mangrove stands.

Keywords: Water quality; mangrove stands; physical parameters