ABSTRACT

Six seagrass meadows located within and near the eutrophic Kingston Harbour were investigated from October 1995 to June 1996. Aerial productivity, leaf turnover rate, leaf area, total biomass and shoot density of the seagrass were measured during the period. In addition, the water quality at all the sites was monitored, using phytoplankton biomass as the primary index of water quality. These data were supplemented with data collected on the water temperature, salinity, dissolved oxygen content, nutrient content (nitrates + nitrites and phosphates), and light extinction coefficient at these sites. Although there were no significant differences in nutrient data at the six sites, the phytoplankton data confirmed previous observations of a range of water qualities from eutrophic Kingston Harbour, to mesotrophic Hellshire Bays and oligotrophic Port Royal Cays. The seagrass at these sites exhibited an increased leaf turnover rate and leaf productivity with increased eutrophication. It was evident that seagrasses in eutrophic and mesotrophic sites expended a lot more energy into the production of new leaf material than oligotrophic sites. When compared to previous studies, the seagrass turnover rate and leaf productivity in and near Kingston Harbour were much higher in response to increased eutrophication.