

WATER QUALITY OF A NEARSHORE HAWAIIAN EMBAYMENT:  
VARIABILITY AND FORCING PROCESSES

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## ABSTRACT

The effects of both point and non-point sources of pollution on nearshore water quality in Mamala Bay were studied under baseline conditions and episodic events (wave, rainfall). During baseline conditions, all measured parameters at surface and bottom stations remained relatively uniform. Many chemical variables were unaffected by waves and basically remained baseline in character. Two notable exceptions were significant decreases in phosphate and increases in nitrate and ammonium over baseline values at all surface and bottom stations. During rainfall events, notable changes were observed in water quality at the surface particularly near Pearl Harbor and the Ala Wai Canal. Nearshore water quality in Mamala Bay appears to be controlled by natural processes with the water column usually mixed by strong currents and unrestricted water circulation. Consequently, water quality analyses do not reveal significant changes to the water column, except at the mouths of the Ala Wai and Pearl Harbor.