

Anthropogenic Nutrients and Phytoplankton Diversity in Kenya's Coastal Waters: An ecological Quality Assessment of Sea Turtle Foraging sites

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Abstract

We assessed ecological quality status (EQS) of coastal waters following claims of increasing sea turtle fibro-papillomatosis (FP) infections in Kenya, a disease hypothesized to be associated with 'poor' ecological health. We established widespread phosphate (P) and silicate (Si) limitation, dissolved ammonium contamination and an increase in potential harmful algal blooming species. Variations in the EQS was established in the sites depending on the indicators used and seasons. Generally, more sites located near hotels, tidal creeks, and estuarine areas showed 'poor', and 'bad' EQS during rainy period compared to dry season. Additionally, 90.1 % of the sites in 'poor' and 'bad' EQS based on dissolved inorganic nitrogen. Low dissolved oxygen, elevated temperature, salinity and ammonium, 'poor' EQS based on DIN, and potential bio-toxin-producing phytoplankton species characterized the FP prevalent areas, specifically during the dry season suggesting environmental stress pointing to the hypothesized connection between ecological and sea turtle health.