ANALYSIS OF WATER QUALITY VARIATION AND ITS POLLUTION SOURCES IN ARUGAM BAY RECREATIONAL AREA

K. Sivakumar[1]

[1] Marine Environment Protection Authority, No.758, Baseline Road, Colombo 09.

[1]agrosiva23@gmail.com

Maintaining and protecting the quality of the recreational water is an important environmental health and resource management issue. Marine water quality monitoring is essential in identifying the risks in recreational waters and public health and plays an important role in determining the degree of pollution from land-based sources as well as from the sea based sources. Present study was undertaken with the view of assessing marine water quality of Arugam bay beach and its suitability for recreational activities. In addition, an attempt was made to suggest recommendations to mitigate the pollution levels. Water quality monitoring was conducted in 09 sampling points along the Arugambay coastal stretch representing bathing, surfing and fishery boat parking sites. Research was carried out monthly for a period of 03 months period from February to April, 2015.

Marine water quality results revealed that, average pH (8.15± 0.1) and temperatures (30.9± 1.92 0C) were within the recommended ranges for recreational sites and turbidity value (9.52± 0.58 NTU) was below the maximum permissible limit. Recorded average pH values are indicated slightly alkaline conditions and turbidity values of bathing site are higher than surfing and fishery sites, most probably due to the high density of sea bathers and re-suspension of micro particles due to excess disturbances. Mean Dissolved oxygen (7.51± 0.32 mg/l) was above the minimum recommended criteria whereas mean Nitrate (0.068± 0.075 mg/l) and Phosphate concentrations (2.97± 4.35 mg/l) exceed the recommended values. Substances carried to Arugam bay lagoon (fertilizers and detergents), sewage and storm water runoff nearby settlement area can be considered as the most acceptable cause which influence on Nitrate and Phosphate concentrations in water. Average values of Total Dissolved Solids, Electrical Conductivity and salinity were 27.14± 1.69ppt, 55.32± 3.58mS/cm and 32.24± 0.61PSU respectively.

Further, mean total Coliform (9± 9MPN/100ml) and *Escherichia coli* concentrations (6± 7MPN/100ml) were within maximum threshold limits. Total Coliform and *Escherichia coli* concentration are high in bathing site than surfing and fishery sites.

Continued on next page

Continued

Further studies are needed to determine oil and heavy metal concentration and long term monitoring programs are essential to obtain clear picture of the pollution status of Arugambay and its suitability for recreational activities.

Keywords: *Marine water quality, recreational site, bathing site, pollution*