

EVALUATION OF TROPHIC STATUS IN NARTA LAGOON BASED ON BIOLOGICAL INDICATORS

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ABSTRACT

Narta Lagoon, one of the largest and most important coastal ecosystems of Albania, is situated on the south-eastern coast of the Adriatic Sea, northwestern part of Vlora district. Turbidity which expresses the degree to which light is scattered and absorbed by molecules and particles, is a measure of the degree of the water transparency losing by the presence of suspended particulates including sediments and phytoplankton. Water turbidity is measured in FTU (Formazin Turbidity Units) applying a turbidimeter, type *HANNA HI 93703-11*. Water transparency that indicates the level of biological activity can be measured easily using a Secchi disc (Horizontal black disc). Horizontal Secchi disk was applied to measure the Secchi distance in Narta lagoon as a shallow one. The distance at which the disc disappears is recorded as the measure of water visibility.

Turbidity parameters are measured every two weeks over a sampling period from July to November 2011, at each of four selected sites differentiated by sea-lagoon water communication. Turbidity and transparency values of the sites varied noticeably exhibiting spatial differences by station as well as changes over the sampling period. The observed variations can be explain by the communication sea-lagoon, fresh water supply as well as by the pollution near the urban areas. Analysis of variance (one-way ANOVA) detected significant sites effect at Narta ecosystem ($P < 0.01$). Water transparency recorded as Secchi distance and turbidity measured in FTU were strongly correlated taken in consideration all selected sites over the sampling period. The relationship between these parameters can be expressed by an inverse power trendline, $R^2 = 0.95$. Classification of Hakanson and Carlson related to the Secchi distance measurements as bioindicator of algal abundance allowed to characterize the selected sites of Narta lagoon by different level of trophic state.

KEYWORDS: Narta Lagoon, Secchi Disk, Transparency, Trophic State, Turbidity, Turbidimeter, Water Ecosystem