

Assessing the Classification Indices of Ecological Quality Status Using Benthic Macrofauna Identification in Gorgan Bay

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Abstract

The present study was conducted for the first time to investigate and identify the ecological quality status (EcoQ) of Gorgan Bay and also to emphasize the degree of agreement between the results of different benthic macrofauna indices, introduction of appropriate index and utilization of basic results in environmental management programs in the region. To do, ۲۲ sites were selected and macrobenthic fauna sampling was conducted seasonally in during ۲۰۱۳. Totally, ۱۴ species were identified and their biotic indices of BENTIX, BOYA, AMBI and M-AMBI were obtained ۲,۲ (۲-۳,۰), ۰,۴ (۰,۰۹-۰,۰۷۱), ۳,۲ (۲,۱-۳,۰), and ۰,۶۰ (۰,۰-۰,۹۳), respectively. All the indices indicated a worse EcoQ in eastern part than western part of the bay. A positive and moderate relationship between M-AMBI with Shannon diversity index and BENTIX, as well as between BENTIX with BOYA exhibited a similar trend in quality assessment of the stations. A partial agreement in EcoQ scores was obtained in ۳۲% of the stations while a disagreement was shown in the remaining stations (۶۸%). However, AMBI and M-AMBI revealed a better and more realistic judgment on EcoQ of the bay which was consistent with the distribution of pollution as an environmental stressor. On the other, since M-AMBI uses the results of AMBI, diversity and richness indices as multimetrics, and more importantly is acquired by the most value of Shannon diversity index as a reference, hence the results of M-AMBI had a stronger judgment on EcoQ of the Gorgan bay.

Keywords: M-AMBI, AMBI, BENTIX, BOYA, Gorgan Bay.