

Investigating the Effects of Aquaculture on Sediments and Benthic Communities (Ghazaleh creek Case Study)

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Abstract

Environmental effects of marine aquaculture in cages depend on a variety of factors, including species, nutrition, density, and quality of substances and released particles. The results of the studies have shown that about 23% of carbon, 21% of nitrogen, and 53% of phosphorus feed accumulates on the system of growing in sediment foam. The most important of these effects is on the sea floor, where benthic organisms are the most consumed oxygen. This study examines sediment and macrobenthic of Ghazaleh that some celery fish are raised in cages. In this study, we studied the sediment and macrobenthos in Ghazale creek, in Khore-Mussa area in North West of Persian Gulf. Monthly sampling from 4 stations was done from June 2007 to March 2008(during nine month). Stations were selected according to distance from cages in Ghazale creek. At each station, 3 samples for macrobenthos studying, sample for sediment grain size analysis and total organic matter (TOM), were collected by van veen grab with 0.0225 m² area. The range of total organic matter (TOM) percentage in sediment was (6.11-23.26) and the range of silty-clay percentage was (4.76-97.47). The result of macrobenthic included 21 macrobenthic order and *Polychaets* (60.62%), *Mullusca* (19.67%), *Crustacea* (16.49%) were *dominante* groups. Macrobenthic abundance, biomass and diversity index value under cage station were less than the 400m distant station. *Capitella sp.* as opportunist species was dominant under cage station. This species are represented as pollution indicator.

Keywords: Benthic communities, sediment quality, fish breeding in cages, Ghazaleh Creek.