Artificial reefs in the optimization of environmental conditions in marine cage

Behzadi S.[*1]; Zahedi M.R.[1]; Gozari M.[1]; Rameshi H.[2]; Mohebbi S.P.[3]; Alizadeh A.[3]; Barani M.[3]

1-Persian Gulf and Oman Sea Ecology Research Center, Agricultural Research, Education and Extension Organization (AREEO), Bandar Abbas, Iran.
2-Persian Gulf Mollusks Research Station, Agricultural Research Education and Extention Organication (AREEO), Iranian Fisheries Sciences Reseach Institute, Bandar-e-Lengeh, Iran
3-Hormozgan Fisheries Organization, Bandar Abbas.
*Corresponding author's email: Siamakbehzady@gmail.com

Abstract

The growth of the cage culture industry has raised concerns among ecologists about the devastating effects of aquaculture on the environment in recent years. The effect of destructive factors on marine ecosystems has reduced their ecological potential, reducing their ability to play a habitat role for coastal migratory fish and nursery ground for many invertebrates and other aquatic animals. The destruction of natural coastal habitats and the reduction of their capabilities is a major threat to aquatic organism stocks, as well as a critical start for industrial and traditional fisheries. Therefore, the Integrated Multi Trophic Aquaculture (IMTA) was introduced based on the use of all trophic levels, to environmental sustainability (biological control), economic stability and the better management. Artificial reefs are man-made devices that, after setting in the seabed, affect the bed and the surrounding environment physically, chemically, hydrologically and biologically. Artificial reefs is used for the rehabilitation of corals, fishes, biodiversity increasing, and etc. in the world. Othermore fisheries value of artificial reefs is marine organisms' production by the direct and indirect, it should not be ignored ecological value of artificial reefs together with natural habitats in the absorption of nutrients, improving of water quality, as well as modification of the environment seabed. Therefore, in this study will be discussed their role in optimizing of environmental conditions in marine cage culture , by reviewing of the artificial reef projects results in the Persian Gulf and Oman Sea, then it discuss on the methods of artificial reefs arrangement and the appropriate type of them for this purpose. Using of artificial reefs is presented in cage aquaculture for the first time in the Persian Gulf and Oman Sea.

Keywords: Cage culture, Artificial reef, IMTA, Condition factor, Persian gulf and Oman Sea