World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:12, No:03, 2018

Effects of Oil Pollution on Euryglossa orientalis and Psettodes erumei in the Persian Gulf

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Abstract : Marine pollution is a global environmental problem. Different human activities on land, in the water and in the air contribute to the contamination of seawater, sediments and organisms with potentially toxic substances. Contaminants can be natural substances or artificially produced compounds. After discharge into the sea, contaminants can stay in the water in dissolved form or they can be removed from the water column through sedimentation to the bottom sediments. Histopathological alterations can be used as indicators for the effects of various anthropogenic pollutants on organisms and are a reflection of the overall health of the entire population in the ecosystem. These histo pathological biomarkers are closely related to other biomarkers of stress since many pollutants have to undergo metabolic activation in order to be able to provoke cellular change in the affected organism. In order to make evaluation of the effects of oil pollution, some heavy metals bioaccumulation and explore their histopathological effects on hepatocytes of Oriental sole (Euryglossa orientalis) and Deep flounder (Psettodes erumei), fishes caught from two areas of north coast of the Persian Gulf: Bandar Abbass and Bandar Lengeh. Concentrations of Ni and V in liver of both species in two sampling regions were in following order: Bandar abbass Bandar lengeh; also between two species, these quantities were higher in P. erumei than E. orientalis in both sampling regions. Histopathology of the liver shows some cellular alterations including: degeneration, necrosis and tissue disruption, and histopathological effects were severe in P. erumei than E. orientalis. Results showed that Bandar Abbass region was more polluted than Bandar Lengeh, and because Ni and V were oil pollution indicators, and two flat fishes were benthic, they can receive considerable amount of oil pollution through their biological activities like feeding. Also higher amounts of heavy metal concentrations and major histopathological effects in E. orientalis showed strong relationship between benthic habitat of the fish and amounts of received pollutants from water and sediments, because E. orientalis is more related to the bottom than P. erumei.

Keywords : heavy metals, flatfishes, Persian Gulf, oil pollution
Conference Title : ICEBESE 2018 : International Conference on Environmental, Biological, Ecological Sciences and Engineering
Conference Location : Madrid, Spain
Conference Dates : March 26-27, 2018