Hyrdology and hydrobiology monitoring of Persian Gulf in Khuzestan area

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Absteract:

Persian Gulf encountering several challenges, low diversity, industrial pollution and harmful waste water are the main threats of Persian Gulf ecosystem.In present study, seasonal sampling was carried out in nine stations in North-West of Persian Gulf in Khuzestan coastal waters during 2006.The parameters, temperature, salinity, dissolved oxygen, density and conductivity were measured by CTD, the nutrient were sampled by bottle sampler and analyzed with standard methods. For analyzing heavy metals in sea water, sampling was done by using COC (Close –Open–Close) sampler and after setting pH, samples were analyzed by polarographi methods .Sediments samples of each station were collected by Ecman grab with the area 225 cm3 from surface layer and transferred to lab in to the bag. Phytoplankton samples were collected from water column by using pump method. For zooplankton study, 200 liter of sea water filtered in to 100 μm mesh plankton net. Benthic animals were collected by Peterson grab, samples after washing in 500 μm mesh sieve and fixed with alcohol. Heavy metals concentrations in sediments were compared with global guideline sediments quality and geoaccumulation index was calculated. WQS index was used to determination of quality status of water. Biotic indices such as eveness and diversity (H´) were used for assessment biotic communities. The WQS index values in all stations were 3.4, except for stations 3 and 9 that were calculated 3. These values, all stations are classified in moderate water quality status. The values of different physico-chemical parameters are located in the ranges of their values in other studies Persian Gulf.geoaccumulation index values for Cd, Cu, Zn and Ni were negative that means these heavy metals have not reached in sediments. This index for Pb was between one and two, which means for Pb values. The sediments are classified in moderate polluted level. The higher Pb values in sediment can be caused by anthropogenic activity in studied area.Comparison between heavy metal concentration and global standard values show that Zn and Pb are less than all of the standard levels, Cd is more than ERL and LSQGs and less than ERM and PEL, Ni was more than all standard levels and Cu is just a little more than ISQGs.The heavy metals values in water were lesser than safety level, Zn and Cu were lesser than permissible values and Cd, Ni and Pb were just a little more than permissible values.The heavy metals Cu, Zn, and Ni were less than standard level in fish tissue and higher Pb values maybe caused due to higher values of Pb in sediments.In this study 27 phytoplankton genus were identified that including 3 classes, Bacillariophyceae (87.7%), Dinophyceae (7.67%) and cyanophyceae (3.16%) with the mean values 40980, 3605 and 2424 number per liter respectively. From Bacillariophyceae, the genus cheatocerus with 53%, from Cyanophyceae genus Oscillatoria with 84% and from Dynophyceae the genus Peridinium with 83% were the most abundant genus. Cheatocerus is one of the harmful algae genus in temperate coastal waters and its bloom can be caused finfish mortality .The zooplanktons included 91% Copepoda, 4.4% Mollusk, 2.6% Protozoa and 1.4% Polycheat

larva. The mean of zooplankton density were 310 in spring, 2236 in summer and 84 numbers per liter in winter. Different zooplankton groups are similar to the percentage of other studies in the studied area.In this search 12 groups of macrobenthic animals were identified. The most abundance groups were Polycheats (26%), Bivalves (15%), Gastropoda (11.3%) and Isopoda (10.9%) respectively.The mean values of macrobenthic density were 2069 in spring, 1915 in summer and 2581 number per m2 in winter. The result of macro benthic animals indicates that there is more richness value in Khuzestan coastal waters In comparison with other studied in Persian Gulf .