POSSIBLE OCEANOGRAPHIC EFFECTS FROM OPERATION OF OTEC PLANT (OCEAN THERMAL ENERGY CONVERSION) IN THE AREA OF PUERTO ANGEL, OAXACA, MEXICO.

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ABSTRACT
Ocean thermal gradient is based on exploiting the temperature difference between the surface and deep waters; thus the equatorial and subtropical regions are most suitable for the use of this type of energy. An OTEC plant uses this temperature difference (which preferably should not be less than 20°C) to transform heat into electricity. Prototypes have been tested for decades (Cuba was the first to prove this technology) besides the United States mainly (in Hawaii) and more recently India, Japan and South Korea. Mexico is just beginning to take an interest in OTEC plants because the country has oceanographics ideal conditions. This paper discusses the possible theoretical effect on a biological level the operation of the plant can cause. It was calculated temperature gain passage through the plant and discharge water density and water discharge parameters were compared with the normal parameters for the study area in order to observe whether there are significant differences and determine the possible effect type present. Also, the results of the physicochemical parameters of the OTEC was used to determine the effect on a biological level in Puerto Angel, paying more attention to the organisms belonging to harmful algal phytoplankton (FAN). In cases of temperature and salinity, the contrast of the data indicates that’s not present any negative involvement while the nutrients present to difference in concentration, which is higher between 72 and 113 m of depth when the OTEC plant is in
continuous operation. However, due to the oceanographic dynamics of the area, the rate of dilution of nutrients and other factors present, would not have a significant effect on the phytoplankton. We conclude that there will not have a significant effect in the study area, recommending further measures for monitoring and frequent security with which the operation of the plant is viable.