

## POLLUTED WATER EFFLUENT IN THE SEA

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### EXTENDED ABSTRACT

In this experimental study some measurements and the analysis of them are presented concerning the polluted water effluent disposal in the sea water. The wastes are disposed through the round openings of a submerged in the sea diffuser, in the form of turbulent jets which are mixing (diffusing) with the sea water. Three inclination angles (to the vertical) of the jets are examined,  $\varphi=15^\circ-45^\circ-75^\circ$ , and at any angle three Froude numbers are also examined,  $Fr_0=4.8-17-25.3$ .

The presentation is dimensionless in terms of length and mass concentrations. Suitable equations are determined for the jet trajectories (axes) towards the sea surface. These equations are more general, since they are based not only on the present measurements, but also on previous measurements by the author for  $\varphi=90^\circ-112.5^\circ-120^\circ-135^\circ-150^\circ$ , i.e. the trajectory equations hold in the range  $15^\circ \leq \varphi \leq 150^\circ$ . For  $15^\circ \leq \varphi \leq 75^\circ$ , an equation is also given, concerning the dimensionless concentrations on the jets' axes.

It is believed that this study, in the field of Environmental Hydraulics, is useful for those people who are dealing with the pollution control technologies, especially when designing the submerged diffuser.

**Key words** : Sea, Environmental Hydraulics, Jet flow, Diffusers, Water Pollution