

Environmental and Ecological Impacts of Discharged Effluents from Salt-Making and Desalination Plants and Minimizing These Impacts

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Summary

There is a possibility that salt-making and desalination plants might cause environmental changes of local effects. In this report, impacts of the effluents from the salt-making and the desalination plants into the seawater environment were discussed.

High stress conditions of the fish were caused and the recovery period was prolonged, when fish exposed to copper and sodium hydrogen sulfite (SBS) in hyper-salinity seawater were subjected to the secondary stresses. Rapid changes in water temperature, thermal conditions, have large physiological and behavioural impacts on fish. Stress tolerance was also reduced in fish exposed to hypo-salinity seawater. These were suggested that the prolonged exposure to the brine derived from salt-making and desalination plants effects on ecosystem health and biodiversity.

On the other hand, in the field study, noticeable effects of the brine from salt-making and desalination plants on the number of and composition of bacteria and the physiological functions of wild fish inhabiting coastal area released continuously the brine were little. Lowered survival rate and increased SOD (an anti-oxidant enzyme) activity in gills from the fish exposed to the brine from a salt-making plant, however, were observed by chance (only one trying in three).

The result of this study will suggest that to minimize the large fluctuations of temperature and salinity, and the environmental load material density of the effluents from the salt-making and desalination plants is mostly important for reduction the environmental impacts, as much as possible.