Environmental Monitoring of Sand Dredging Around the Northern & Eastern Coastal Areas of Kingdom of Bahrain

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Prepared by:
Ali Abdulla Ali Isa
20052950

Supervised by:
Dr. Khadija Abdulla Zainal
Assistant Professor

Co-supervised by:
Dr. Qaher Ali Mandeel
Professor

University of Bahrain
Kingdom of Bahrain
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Abstract

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The current environmental status of sand dredging companies was investigated during November-December 2016 to monitor the impacts of their activities on the marine environment in the Kingdom of Bahrain. A total of 55% of licenses of Bahraini national sand dredging companies followed the environmental requirements. However, these requirements are mainly related to the air quality and the occupational health of these companies. The remaining licenses (45%) do not follow any environmental requirements which indicates that there is a gap between these companies and the environmental agencies. Additionally, it is found that only (9%) of national sand dredging companies apply siltation to their dredged material, in order to mitigate the negative impact of dispersion of the fine silt to the marine environment.

The present study suggested a compliance plan that could help the environmental agencies in the Kingdom of Bahrain to adopt an efficient monitoring program for these companies and guide them to work in harmony with the national environmental requirements and standards. Ambient sea water total suspended solid (TSS) samples were collected and analyzed using methodologies of "MOOPAM ROPME" in the northern and eastern locations of the Kingdom of Bahrain. The total mean of TSS in ambient sea water samples was 6.1 mg/l. A slight difference was found in the TSS between the eastern studied area (5.9 mg/l) and the northern studied area (6.1 mg/l). The effect of some environmental factors such as climate temperatures, dust storms and rain level were studied. Also, it was found that, dust storms and rain level play an important role in increasing the amount of the TSS in the sea water of the Kingdom of Bahrain, while the monthly climate temperatures have no significant effect on the concentrations of the TSS in the sea water samples.

It can be concluded that there is an urgent need to apply an environmental compliance plan and a proper management to minimize adverse influences of the national sand dredging companies activities on the marine environment of the Kingdom of Bahrain. Also, there is a need to adopt a comprehensive compensation plan which can estimate and compensate the environmental damages evoked by these companies.