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## **The Effect of Aquaculture Facility on the Bacterial Levels of Seawater of Sigacik Bay, Izmir, Turkey**

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**Abstract:** The aim of this study was to determine the changes of microbiological quality of seawater affected by an aquaculture facility, found in Sigacik Bay, Izmir, TURKEY. For this purpose, water samples from the center of the facility (center of 10 fish cages) were collected monthly from August 2007 to April 2009. There were two reference sampling stations, which are found offshore, and seashore of Sigacik Bay used for comparing data. Water sampling was performed via Nansen Water Sampling Bottle from 2 m (surface) and 40 - 60 m (deep waters, above sediment approx. 1 – 2 m). *Pseudomonas* sp., *Enterobacteriaceae* sp., *Vibrio* sp. and total aerobic bacteria (marine origin) counts were determined in water samples. According to findings, samples taken from facility station have shown slightly higher

bacterial levels in comparison with reference samples. Highest total aerobic bacteria count determined as 6.4 Log cfu/ml in surface water of facility station in September 2007. Highest *Pseudomonas* sp. and *Enterobacteria* sp. counts determined in surface waters of facility station as 5 and 3.26 Log cfu/ml in August 2007 and December 2007, respectively. *Vibrio* sp. counts were found to be higher levels in reference stations than facility station. Highest count of *Vibrio* sp. was determined as 3.51 Log cfu/ml in seashore reference samples. In general, all bacteria groups have shown similar fluctuation and there is no obvious differences was determined between facility and reference samples (in deep and surface water samples). In conclusion, it was determined that aquaculture facility found in Sigacik Bay, İzmir, Turkey do not affect the bacterial loads of seawater of the bay.

**Keywords:** Aegean Sea, aquaculture, Sigacik Bay, bacterial load, bacterial pollution.

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