

GRAIN SIZE DISTRIBUTION ANALYSES AND FACIES CHARACTERISTICS OF THE HOMA LAGOON IZMIR BAY, AEGEAN SEA, WESTERN TURKEY

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Abstract

This study aims to introduce mechanisms of sediment supply and processes and to investigate their effects on the formation of ecosystem and habitat, based on the grain size distribution of recent deposits of Homa Lagoon. According to the grain size distribution analyses, Homa Lagoon shows the typical characteristics of the following environments from the land to the sea. Samples of Homa lagoon pond show typical characteristics of lagoon pond deposits which are rich in coarse to medium-sized silt with negative skewness and imply that the lagoon was lack of effects of high-energy waves, storms and terrestrial sediment supply. It is concluded in this study that the Homa Lagoon has recently been supplied by low-energy fluids from the land and wave effect was very slow and low in sediment distribution.

Keywords: Sediments, Sediment Transport, Lagoons

Homa Lagoon covers an area of 1852 ha and is located in Izmir Bay, 40 km to the northwest of Izmir and 500 m to the south of Izmir Bird Paradise. More than 200 bird species live in the lagoon where fishery is one of the important occupations of local population. Birds and fishes use the lagoon for feeding, habitat, reproduction and maturation.

This study aims to introduce mechanisms of sediment supply and processes and to investigate their effects on the formation of ecosystem and habitat, based on the grain size distribution of recent deposits of Homa Lagoon. In order to accomplish this aim, Homa Lagoon is divided into three transverse and seven longitudinal sampling stations. Samples are 24 cm in thickness and were collected by Gravity Corer. According to the grain size distribution analyses, Homa Lagoon shows the typical characteristics of the following environments from the land to the sea: Marsh, landward lagoon beach, seaward lagoon beach, lagoon pond, sand barrier (dune) and shoal (back and front) (Reineck & Singh, 1980; Reineck, 1971).

That the coast and the sand barrier are rich in fine sand grains and include fine silt shows that wave effect is poor. Seaward lagoon beaches and poorly developed landward lagoon beaches are represented by medium to well sorted, fine sand with approximately symmetric skewness degree and reflect low wave effect. Samples of Homa lagoon pond show typical characteristics of lagoon pond deposits which are rich in coarse to medium-sized silt with negative skewness and imply that the lagoon was lack of effects of high-energy waves, storms and terrestrial sediment supply (Visher, 1969). It is concluded in this study that the Homa Lagoon has recently been supplied by low-energy fluids from the land and wave effect was very slow and low in sediment distribution. These conditions would be expected not to have sudden and disturbing impacts on habitat and ecosystem.

References

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