



Monitoring and Assessment of Hydrological and Ecological Changes in Lake Manyas

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Manyas Lake in the northwest of Turkey occupies an area of 165 square kilometers. The surface area of the lake is continuously changing due to human activities, hydrologic and climatic conditions. The objective of this study is to examine the changes in water level and the area of lake and the effects of these changes on the lake's ecosystem and human economic activities. In order to determine the changes lake level measurement data, 1/25000 scale topography maps, rainfall and temperature data and bathymetry maps were used and elevation models were made. During the study period the water level fluctuated between 14.0 and 17.8 meters, and surface area changed between 124,8 km² and 170,6 km² respectively. Prior to the construction of a flood barrier at the southern end of the lake in 1992 the maximum surface area of the lake was calculated at 209 km².

Lake Manyas is an important wetland on the route of migration of birds from/to Europe and Africa. 64 ha of the lake and its surroundings along with the entire National Park is a Ramsar site.

Irrigated and dry farming is practiced around the lake and fishing is important economic activity. The changes in the water level as result of natural and human factors brought about negative effects on the lake's ecosystem in last ten years. Result of these effects, natural fluctuation of the lake changed and the marshes around the lake destroyed and the bird population decreased. Lowering the water level in the lake is also significantly reduced the number of fish and number of migratory birds.

The construction of the flood barrier destroyed vegetation and bird life in about a 25% of area of the lake on the south. The natural ecosystem in this area has been adversely affected. Moreover, when the water level is low due to low rain fall and irrigation, vegetation on the lake's shore line dies and some areas turn to swamp. The fauna and flora are negatively affected by water level changes particularly in the protected National Park area.