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Palaeogeographic evolution of Alykes lagoon, Pydna, Northern Greece during the Holocene, based on geomorphological and sedimentological data.

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In this study an attempt is made in order to determine the palaeogeographic evolution of Alykes lagoon, located along the microtidal coast of Pieria Prefecture in northern Greece. For this purpose, sedimentological, micro and macropalaeontological and granulometric analyses have been carried out on sediments that have been collected from two drill cores.

The total area of Alykes lagoon is 10.78 km2 while the length of the coastline is 11.4 km with a maximum width of 320 m, not exceeding an elevation of 1m. The lagoon in its present form does not seem to be filling up by terrestrial-fluvial action. The only human activity in the study area is the saltworks in the northern part of the lagoon.

Two zones have been recognized according to their microfossil content corresponding to different palaeoenvironments of deposition.During the Holocene the sea invaded this lowland area and created a shallow open marine environment which at times was disturbed by multiple terrestrial inputs induced by fluvial discharge and longshore drift. The prevailing drift is from South to North and has contributed to the formation of a barrier spit which extended towards the NNE and finally confined the lagoon in the northwest. The spit has advanced to the east by forming three generations of ridge and swale topography having a slightly different orientation.

Based on a radiocarbon date at -4.4 m below sea level obtained from the southern part of the lagoon, it is assumed that the coastline was already at that location by the end of the seventh millennium BP. Given that the drill core is only about twenty meters from the terrestrial outcrops (Neogene formations) we presume that this was the location of the oldest coastline during the Holocene. Therefore, the formation and evolution of the lagoon can be safely put around the sixth millennium BP.