

A preliminary study of Kalloni Bay

by

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The results of rudimentary descriptive study of Kalloni Bay are presented. The purpose was to find physical evidence that would help in explaining the high productivity of the Bay.

The trips to Kalloni Bay were made to gather observations for this report. The first extended from 12-27 August 1971 and the second the 23 oct. 1971.

During August the difference inside and outside the Bay is mostly thermal warmer inside (24.38 C inside- 21.81 C outside). In October the difference is mostly saline, more saline inside (39.99 ‰ inside - 39.13 ‰ outside). This information leads to two conclusions.

a. The water in the Bay has distinctly different characteristics, implying local mechanisms of temperature and salinity change.

b. There is restricted mixing and exchange with the outside waters.

The probable August thermohaline circulation is the existence of a cool wedge extending along the bottom.

The denser outside water tending to extend at depth and the Bay water exiting on the surface. The October information implies a different structure. The denser Bay water tends to move out along the bottom and the outside water enters towards the surface.

The drogue results show a general up bay movement, in response to the 5 m/sec wind from South-west.

There was some indication that the nutrient values in clear water just outside the Bay were as high or higher than those inside surface water. In any case nutrients were considerably higher (1.0 µgatom/l) than at a comparison station in the Saronikos. This value is for nitrite. Silicon (1.0 µgatom/l) was in adequate supply to support diatom economy.

The high production in the Bay is certainly assisted by nutrient regeneration occurring on the shallow bottom (average depth 10 m.) and by the good mixing without loss to depth.

