

# Sedimentary provinces of the Saronic Gulf system (Greece)

by

MAURICE L. SCHWARTZ\* and CHRISTOS TZIAVOS\*\*

\*Department of Geology, Western Washington State College, Bellingham (U.S.A.)

\*\*Institute of Oceanographic and Fishing Research, Athens (Greece)

## Abstract

One hundred thirty-one bottom sediment samples obtained from the Saronic Gulf system were analyzed for per-cent by weight of their sand, silt, and clay fractions. Coarse fraction composition, and the inclusion of petroleum residue particles, was observed microscopically. The color of each sediment sample was recorded as well. Based upon these data, sediment distribution within the system has been mapped.

Basic factors affecting sediment distribution in this region are as follows :

1. Coarse terrigenous sediments, where present, are transported by wave action in coastal and shoal areas. The fine fractions settle in deep quiet waters or areas of low wave energy.
2. Planktonic productivity increases toward the nutrient-rich waters in the north. Benthic productivity, the main source of the biogenous coarse fraction, decreases with depth; a notable change taking place at the 200 m bathymetric contour.
3. Yellow sediments predominate throughout the system. Where present, olive-colored sediments denote reducing conditions caused by either poor circulation at depth or organic-rich wastes.
4. The introduction of waste material into the system may inhibit benthic community growth and/or add fine particulate matter to the water column.

Utilizing the six main sediment types found in the Saronic Gulf system sediment distribution within this region may be thus described :

1. There is a small patch of *sand* situated northwest of Aegina, and presumably everywhere lies landward of the 50 m bathymetric contour.
2. *Muddy sand* extends from near the tip of Attica to north and west of Aegina, with a branch up toward Piraeus; covers an area at the southwest mouth of the gulf; and fills some Salamis Island embayments.
3. *Silty sand* borders the west coast of Attica; fills an area between Aegina and Methana; and occurs in an area at the center of the system mouth.
4. The main body of *sandy mud* arcs through the southern portion of the system; and three small areas are located, respectively, south of Aegina, west of central Attica, and in the east of Elefsis Gulf.
5. *Sandy silt* fills the center of the upper Saronic Gulf and extends continuously near the shore past Salamis to the Corinth Canal; and is lodged in a small bay on the Argolis coast.
6. *Mud* covers the largest area, filling the Epidaurus Gulf deep and the Attica-Methana trough; as well as the bulk of the Kechreae, Megara, and Elefsis northern gulfs.

