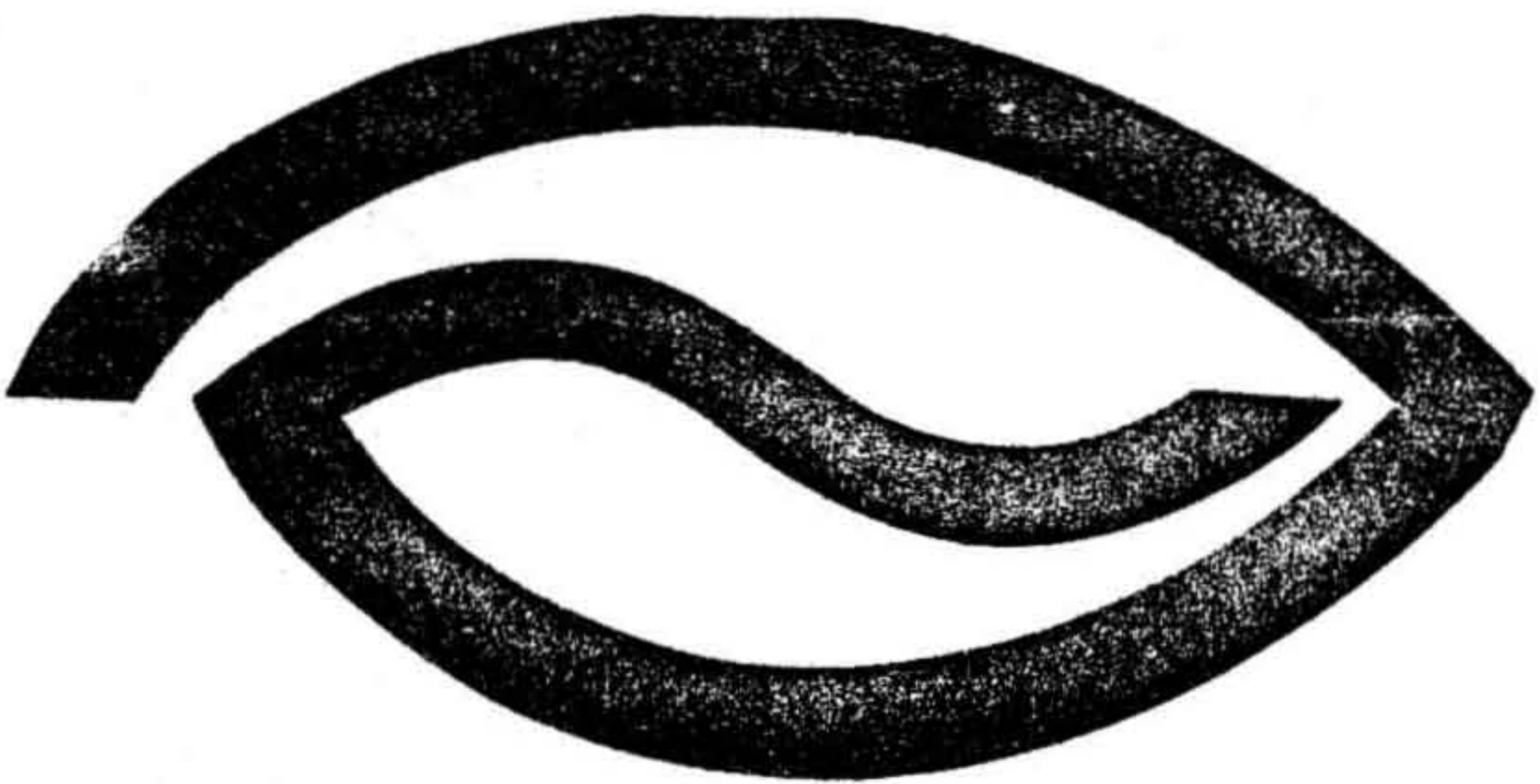




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## Distributional patterns of *Gryphus vitreus* (Brachiopoda) in the Western Mediterranean: effects of silting

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Forming a belt along the continental margin from the shelf edge (100-120 m) down to between 160 and 300 m, the *Gryphus vitreus* biocoenosis is directly related to moderate bottom-currents (driven by the circulation of the Atlantic water masses within the Mediterranean) and occurs on 2 types of profiles:

Type I, beyond the continental shelf-edge, a continuous slope;

Type II, beyond a short edge, an offshore shelf followed beneath its edge (~150 m) by a continuous slope.

The stenotopic brachiopod *Gryphus vitreus* is an excellent indicator of the extension of the biocoenosis in relation to hydrodynamic variations (current velocity and direction). Its densities can be divided into 5 horizontal zones, directly related to the velocity the bottom-current can reach:

Zones 1 & 5: 5-10 individuals.m<sup>-2</sup>, under a current up to 0.5-1 knot; Zones 2 & 4: 20-100 individuals.m<sup>-2</sup>, up to 1-1.5 knots; Zone 3: 200-700 individuals.m<sup>-2</sup>, 1.5-2 knots.

The current direction over the 2 types of profiles induces 3 different models according to the distributional limits of the *G. vitreus* zones:

Model A, with 3 on Type I, and liable to an oblique direction of the current (from the continental shelf); Model B & Model C, with the 5 zones, on Type II, under the influence of a current parallel to the slope on Model B, and perpendicular to the slope on Model C.

All 3 Models exhibit the same upper limit (at the continental shelf edge) and, below 150 m, zonal bathymetric limits are directly related to the incline:

-inclines more than 10°: no change of these limits (~250 m and ~200 m);

-inclines less than 10°: the bathymetric limits rise, correlated with the decrease of the current influence at the depth when the slope becomes weaker (more in Model A>C>B); but that does not affect the spatial distribution of the zones, except of zones 3 and 5 in Model B and a shortening of Zone 4 in Model C.

A strong silting, a consequence of recent fire deforestation over the coastal ranges, began on the NW shelf and continental slope of Corsica (France) and its effects lead to a decrease of the *Gryphus vitreus* density as well as a decrease of the percentage of greenish *Gryphus* shells bored by a green alga *Ostreobium*, getting information about the changes of the lower limits of the phytal system. These observations indicate that *G. vitreus* is quite sensitive to sedimentation (..... terrigenous input or strong sedimentation being highly unfavourable).