

Roman fish tanks and their role as sea level indicator

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This presentation is about Roman fish tanks and their role as sea level indicator. These constructions of art, evidence of the social profile and culture that prevailed in Roman times, are constructions of remarkable engineering and today they have important role as sea level indicators.

Over short periods of time (seconds to months), sea level rises and falls because of waves, tides, changes in atmospheric pressure, and wind. The average of these changes can give a fixed value, the mean sea level. When the sea level rises, the coastline moves landward, whereas, when the sea level falls, the coastline moves toward the open sea. Locally, tectonics can cause changes in the relative position of land and sea. Vertical tectonic movements are usually continuous and gradual over a long period of time, but when associated with seismic activity they are



Upper photo: The Formia fish tank, Tyrrhenian coast, Italy, in which the rhombic shape was particularly used. Credits: N. Evelpidou, 2010.

Lower photos: Internal channels connecting two tanks at the Montazah fish tank in Alexandria, Egypt. Both photos correspond to the same channel, it is a different view, aerial and underwater.

Credits: N. Evelpidou. 2014

discontinuous and intense. Sea level changes is a research field that has occupied many researchers worldwide. It is important to understand the magnitude of the change, the rate, the trend, and the causes of sea level fluctuations over the time and for this purpose sea level indicators are used which can be geological, geomorphological, sedimentological, biological or archaeological.

Artificial Roman fish tanks were structures, carefully crafted to provide a suitable environment for fish. Within these, fish were either held until distributed to market, bred for future consumption, or confined to contribute to their owner's tasteful environment. Typically, wealthy families built piers and fish tanks near their coastal mansions. At first, fish farming was linked to religious ceremony, as fish symbolized fertility. Later, fish farming became an asset of the rich. Their use indicated the financial strength of the owner combined with the luxurious facilities along the coastline, which allowed him to eat fresh fish during banquets. The Romans, who indulged in the practice of fish farming and the construction of fish tanks, have been the subject of considerable socio-economic research as they provide a portrait of life near Naples, where Rome's elite built their luxurious maritime and urban residences, often adding a fish tank to the architectural design of the property.

Roman fish tanks are considered the most reliable type of archaeological sea level indicator, because they have a relatively precise relationship with the sea level during the period of their construction, between the 1st c. B.C. and of the 1st c. A.D.