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NOTAS CORTAS

CONTINUOUS OYSTER BIODEPOSIT COLLECTOR

by

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RESUMEN

Se describe un aparato para la colección de biodepósitos de ostras. El instrumento está fabricado con plástico acrílico transparente y colecta las heces y seudo-heces en forma separada y continua. En este instrumento se pueden acomodar diferentes números de ostras y de tamaños variados.

ABSTRAC

An apparatus for collecting oyster biodeposits is described. It is made of transparent acrylic plastic and collects the feces and pseudofeces separately on a continuos basis. Different numbers of oysters of variable size can be accommodated.

DESCRIPTION OF THE APPARATUS:

In order to study the chemical and physical nature of oyster faces and pseudofeces, a simple collecting apparatus has been developed. The apparatus described here is composed of four units. Each holds five oysters in individual chambers and has the ability to collect separately the biodeposits on a continuous basis. Each organism can be kept under different flow rates.

The biodeposits are collected according to their source, in two settling receptacles, where they can be removed without disturbing the oysters. Constant flow rates are mantained by constant pressure head of the source water using continuous overflow

The apparatus has been designed to hold oysters from about 5 cm to 10 cm in length, and has the capacity to work with different oyster shapes. In particular, the instrument described here was tested with the Pacific oyster *Crassostrea gigas* (Thunberg, 1795) and its different shell types, ranging from the so called round fluted to the long smooth type as described by Quayle (1969). The size and the conformation of the holding chamber are such that they do not interfere with the oyster's shell growth, tissue development or other normal activities.

The apparatus is composed of the following parts (Fig. 1):

I) Adjustable double head tank, II) water distributing manifold, III) oyster chambers, IV) Oyster biodeposit collectors. Each of these units was constructed of transparent acrylic plastic interconnected with Tygon and glass tubes.

In figure 1, the top drawing corresponds to a constant level holding tank, which was used to correct for the uneven flow of sea water from the feed line. From this holding tank, the water flowed to the adjustable water head tank, which consist of cylindrical containers, 9.5 cm I.D. by 15 cm high. The sea water enters at the top and overflowes to mantain a present water head by opening or closing a series of valves. From here the water flows to the water distributing manifold. This unit consist of a horizontal tube (26 mm I.D.) with ten holds, five drilled in each side.

The sea water flows from the manifold to the oyster chambers through individual glass tubes (5 mm I.D.) that are inserted with a rubber stopper on the manifold holds. The glass tubes have a special shape (Fig. 2) which by turning can regulate the rate of water flow by changing the water head height.

The oyster chambers (Fig. 2), are made of 3.18 mm thick acrylic plastic sheets on each side, and 1.6 mm thick sheets on the middle and bottom parts. Each chamber is divided in two by a vertical separator as described by Lund (1957), but in this case the separator also functions as an oyster support with the help of a transverse piece of plastic (Fig. 2). The bottom of each compartment is not horizontal; instead, each compartment slopes in opposite directions to drains that lead to a single collector tube on the side, which conducts the flow to the biodeposit collectors. These latter units are also made of 3.18 mm acrylic plastic sheets and measure 20.3 cm long by 10.12 cm wide and 22.9 cm high. The bottom of this collector is "V" shaped and has four outlets, one per oyster chamber (Figs. 1 and 3). The inside is separated by a baffle which disperses the turbulence created by the inflowing water. Finally, the water is discharged through a flow regulating tube localized in the upper portion of the collector, opposite to the inflowing tubes. These discharging tubes control the rate of water flow to the oyster chambers.

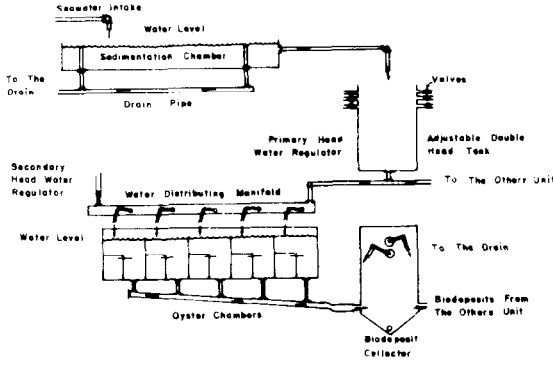


Fig. 1 Functional design of the oyster biodeposit collecting apparatus.

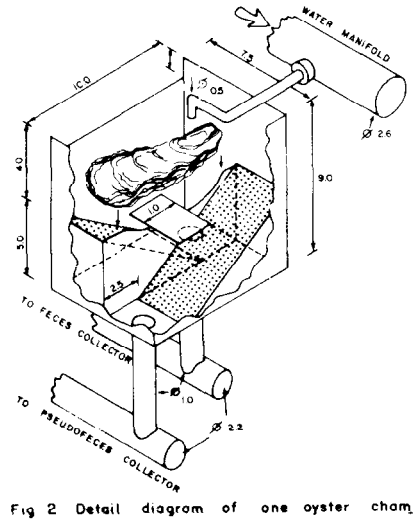
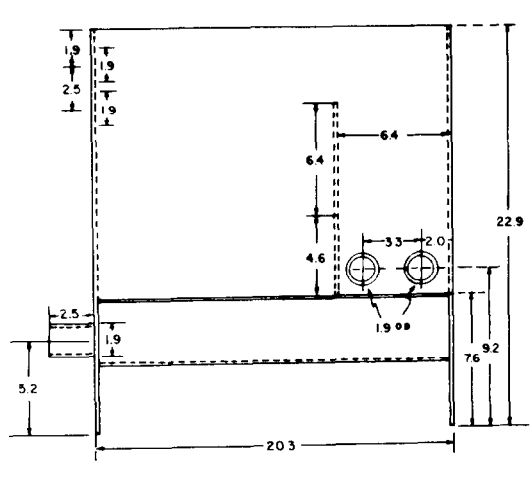
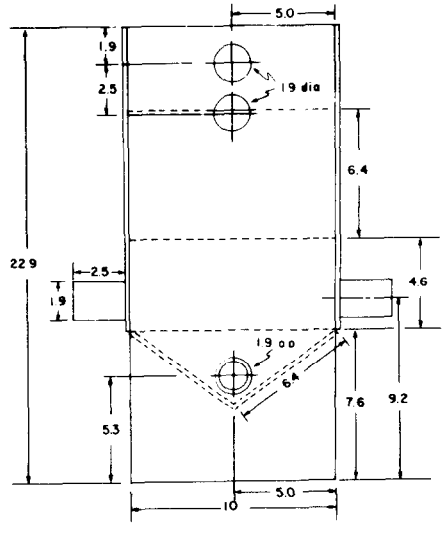


Fig. 2 Detail diagram of one oyster chamber. The measurements are in centimeters.



SIDE VIEW



END VIEW

Fig. 3 Detail diagram of a biodeposit collecting unit
The measurements are in centimeters.

Separate collection of feces and pseudofeces takes place in the oyster chamber. The principle of collection is the same as used by Lund (1957) and Haven and Morales-Alamo (1965). It takes advantage of the different sites of excretion of feces and pseudofeces within oysters. Unlike the apparatus of Lund (1957) and Haven and Morales-Alamo (1965) in which the biodeposits settle and are stored within the oyster chambers, the biodeposits are removed by the flowing sea water and settled out in the biodeposit collector, where they can be removed by siphoning or by suction without disturbing the oysters. The samples obtained in this way are pooled samples.

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