

## Job Report

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## Sources and Effects of Silt Upon Oysters

Objectives: To locate sources of siltation and to examine the effects of silt flow upon oyster reefs.

Procedures: Preliminary studies were confined to observations of silt flow from shell dredges. Silt samples were collected with funnel traps or with a Kemmerer water sampler.

Funnel traps were constructed by inserting metal funnels through corks fitted to wide mouth bottles. The traps were fastened to cane poles or two-by-two stakes to collect samples near the bottom and near the surface of the water. The stakes were set at varying distances from the dredge for a period of twenty-four to forty-eight hours. The traps were then removed and the samples were saved for measurements. Bottom samples were also collected at several locations around the dredge by use of a Kemmerer water sampler.

In both methods, the sediment was measured by transferring a sample aliquot to a 100 ml graduate or to a 100 ml centrifuge tube. The amount of sediment was determined after complete settling had occurred.

Findings: Each method was designed to measure different aspects of silt flow. The funnel traps, in theory, collected particles which were settling out of the water. The Kemmerer sampler collected those particles still in suspension. Neither method produced satisfactory results and no reliable information on silt flow was obtained.

Normal traffic around an operating shell dredge caused heavy casualties among the funnel traps. If not completely gone, the stakes were often tilted over, preventing efficient operation of the traps. Traps which remained unmolested often produced conflicting results, a tendency which cast doubt on the reliability of this method.

The Kemmerer sampler had an advantage in that it permitted samples to be collected in the traffic zones around the dredge but some disadvantages were also found. Often, the sampler would penetrate soft bottom or drag along the bottom, producing samples with an erroneously high quantity of silt. Also, operation of the boat while collecting the sample would occasionally stir up the bottom sediments and increase the silt content of the sample. However, if samples were taken with care, the results were more reliable than those collected by funnel traps.

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