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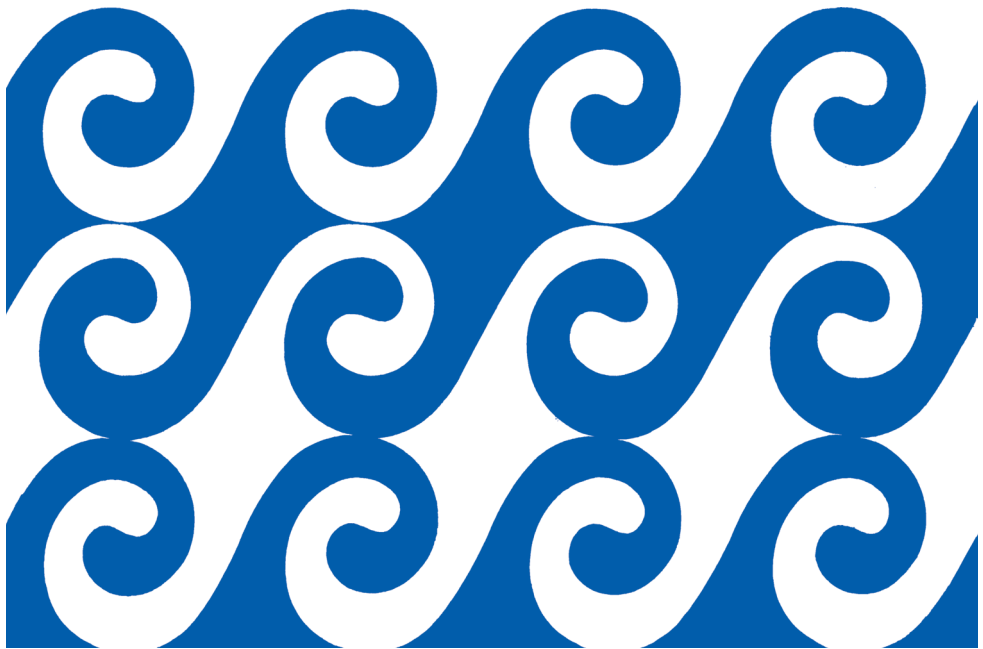
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Journal of Marine Research Classic Articles

**On the oxidation of organic matter in
marine sediments by bacteria**

by **Selman A. Waksman and Margaret Hotchkiss**

Originally published April 9, 1938, in the *Journal of Marine Research* 1(2), 101–118.

EDITOR'S COMMENTARY

Selman Waksman is best known for his work on natural antibiotics, for which he originated the term and received a Nobel Prize. However, he and co-workers also extensively investigated soil microbes and their interactions with biogeochemical processes and elemental cycling.

Although perhaps long forgotten, in this contribution from 1937, Waksman and his close associate, Margaret Hotchkiss, documented the biological availability and reactivity of marine sedimentary organic matter in different types of sediment, as a function of initial burial depth in deposits, and variation with bathymetric depth in the North Atlantic. They used simple serial incubations with oxygen to measure reactivity and decomposition behavior of sedimentary organic matter, an approach that remains in use to this day. They also deduced fundamental concepts that we now commonly incorporate into theories and that underlie sophisticated models of marine carbon and nitrogen cycling, such as the progressive oxidation and diagenetic loss of reactive components during transport into sedimentary deposits or away from surface water and continental boundary sources.

—*Robert C. Aller*