

THE EFFECTS OF EUTROPHICATION
ON BENTHIC ENVIRONMENTS

Roberta Marinelli
Undergraduate Thesis, June 1982
Environmental Studies
Brown University

THE EFFECTS OF EUTROPHICATION ON BENTHIC FAUNA

Roberta Marinelli

ABSTRACT

The Clean Water act aspires to eliminate the pollution of our waters in the 1980's. As part of this goal, all sewage treatment facilities are required to give secondary treatment to domestic and industrial waste. However, secondary treatment does not eliminate dissolved nutrients, which may significantly contribute to eutrophication in estuaries. To analyze this problem, a eutrophication experiment with microcosms designed to simulate a temperate estuarine ecosystem was undertaken by researchers at the Graduate School of Oceanography at the University of Rhode Island. This paper examines the effects of nutrient addition on benthic fauna in the microcosms three months after the experiment started. Macrofauna rapidly exploited the organic-rich environment. Meiofauna densities remained within normal ranges. The mechanisms for the observed changes in community structure are discussed. While food did not appear to be limiting, the dramatic increase in abundance indicates that space and oxygen will probably become limiting factors.

INTRODUCTION