Project Title

Sources and fates of dissolved organic matter in the Mid-Atlantic Bight
Grant # DE-FG02-92ER61438.A003
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Objective

The objectives of the research program were to identify and determine the relative importance of various sources of dissolved organic matter to the continental shelf, and to estimate the net carbon balance for the Middle Atlantic Bight.

Approach

Identification of the various organic matter sources was determined using a multi-tracer approach with emphasis being on DOC and DON concentration, POC and PON concentration, and corresponding C/N ratios. The utilization of the various organic matter sources was determined from laboratory decomposition studies. Decomposition experiments were carried out to measure the rate of removal of DOM (including O₂ consumption, TCO₂ production and bacterial production) and the stoichiometry of remineralization. Information on the degree of chemical reduction of DOM was used to predict organic matter oxidation and microbial growth.

Completed Work

We have prepared several manuscripts and submitted them to journals for publication. Several have been published and others are still in review. We expect at least 1 or 2 more manuscripts to be submitted within the 2000 calendar year summarizing results of prior research. A list of publications to date follows:

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In Review, In Press and Submitted manuscripts:

Hopkinson, C. S., A. E. Giblin, J. Tucker and H. Garritt. Benthic metabolism and nutrient regeneration on the continental shelf off eastern Massachusetts, USA. In review: Marine Ecology - Progress Series.


External Outreach

Results from this project are critical to synthesizing much process-based work of other DOE-OMP researchers.