



Carbon Cycling in Estuarine and Coastal Ecosystems

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Primary Production:

Riley, G. A. 1946. Factors controlling phytoplankton populations on Georges Bank. *J. Mar. Res.* 6: 54-73.

Malone, T. C. 1977. Environmental regulation of phytoplankton productivity in the Lower Hudson Estuary. *Estuar. Coast. Shelf Sci.* 5: 157-171.

Kemp, W.M. and W.R. Boynton. 1984. Spatial and temporal coupling of nutrient inputs to estuarine primary production: The role of particulate transport and decomposition. *Bull. Mar. Sci.* 35:522-535.

Colijn, F. and V. N. De Jonge. 1984. Primary production of microphytobenthos in the Ems-Dollard Estuary. *Mar. Ecol. Progr. Ser.* 14: 185-196.

Cole, B. E. and J. E. Cloern. 1987. An empirical model for estimating phytoplankton productivity in estuaries. *Mar. Ecol. Progr. Ser.* 36: 299-305.

MacIntyre, H. L., R. J. Geider and D. C. Miller. 1996. Microphytobenthos: The ecological role of the “Secret Garden” of the unvegetated, shallow-water marine habitats. *Estuaries* 19 (2A): 186-201.

Community Respiration:

Jørgensen, B. B. 1977. The sulfur cycle of a coastal marine sediment. *Limnol. Oceanogr.* 22: 814-832.

Nixon, S. W. 1981. Remineralization and nutrient recycling in coastal marine ecosystems, pp. 111-138, In: Neilson, B. J., and L. E. Cronin (eds.) *Estuaries and nutrients*. Humana Press, Clifton, NJ.

Kemp, W.M. and W.R. Boynton. 1981. External and internal factors regulating metabolic rates of an estuarine benthic community. *Oecologia*. 51:19-27.

Kemp, W.M., P.A. Sampou, J. Garber, J. Tuttle, W.R. Boynton. 1992. Relative roles of benthic versus planktonic respiration in the seasonal depletion of oxygen from bottom waters of Chesapeake Bay. *Mar. Ecol. Progr. Ser.* 85: 137-152.

Sampou, P. A. and W. M. Kemp. 1994. Factors regulating plankton community respiration in Chesapeake Bay. *Mar. Ecol. Progr. Ser.* 110: 249-258.

Smith, E. M. and W. M. Kemp. 1995. Seasonal and regional variations in plankton community production and respiration for Chesapeake Bay. *Mar. Ecol. Progr. Ser.* 116: 217-231.

POM Deposition:

Hargrave, B. T. 1973. Coupling carbon flow through some pelagic and benthic communities. *J. Fish. Res. Board Can.* 30: 1317-1326.

Smetacek, V. 1984. The supply of food to the benthos. pp. 517-548, In: M. Fasham (ed.) *Flows of energy and materials in marine ecosystems: Theory and practice*. Plenum Press, New York.

Kelly, J. R. and S. W. Nixon. 1984. Experimental studies of the effect of organic deposition on the metabolism of a coastal marine bottom community. *Mar. Ecol. Progr. Ser.* 17: 157-169.

Hansen, L. S. and T. H. Blackburn. 1992. Effect of algal bloom deposition on sediment respiration and fluxes. *Mar. Biol.* 112: 147-152.

Baines, S. B., M. L. Pace, and D. M. Karl. 1994. Why does the relationship between sinking flux and planktonic primary production differ between lakes and oceans? *Limnol. Oceanogr.* 39: 213-226.

Roden, E. E. , J. H. Tuttle, W. R. Boynton and W. M. Kemp. 1995. Carbon cycling in mesohaline Chesapeake Bay sediments. 1. POC deposition rates and mineralization pathways. *J. Mar. Res.* 53: 799-819.

Dissolved Organic Matter and Bacterioplankton:

Williams, P. J. LeB. 1981. Incorporation of microheterotrophic processes into the classical paradigm of the planktonic food web. *Kieler Meeresforsch., Sonderh.* 5: 1-28.

Ducklow, H. W., D. A. Purdie, P. J. Leb. Williams, J. M. Davies. 1986. Bacterioplankton: A sink of carbon in a coastal marine plankton community. *Science* 232: 865-867.

Baines, S. B. and M. L. Pace. 1991. The production of dissolved organic matter by phytoplankton and its importance to bacteria: Patterns across marine and freshwater systems. *Limnol. Oceanogr.* 36: 1078-1090.

Søndergaard, M. et al. 2000. Net accumulation and flux of dissolved organic carbon and dissolved organic nitrogen in marine plankton communities. *Limnol. Oceanogr.* 45: 1097-1111.

Net Ecosystem Production:

Hopkinson, C. S. and J. J. Vallino. 1995. The relationships among Man's activities in watersheds and estuaries: A model of runoff effects on patterns of estuarine community metabolism. *Estuaries* 18: 598-621.

D'Avanzo, C. J. N. Kremer and S. C. Wainright. 1996. Ecosystem production and respiration in response to eutrophication in shallow temperate estuaries. *Mar. Ecol Progr. Ser.* 141: 263-274.

Kemp, W. M., E. M. Smith, M. Marvin-DiPasquale and W. R. Boynton. 1997. Organic carbon-balance and net ecosystem metabolism in Chesapeake Bay. *Mar. Ecol. Progr. Ser.* 150: 229-248.

Smith, S. V. and J. T. Hollibaugh. 1997. Annual cycle and interannual variability of ecosystem metabolism in a temperate climate embayment. *Ecol. Monogr.* 67: 509-533.

Ziegler, S. and R. Benner. 1998. Ecosystem metabolism in a subtropical seagrass-dominated lagoon. *Mar. Ecol. Progr. Ser.* 173: 1-12.