



Ribulose-1,5-bisphosphate carboxylase/oxygenase (RuBisCO): A long-lived protein in the deep ocean

Mónica V. Orellana and Dennis A. Hansell

Limnol. Oceanogr., 57(3), 2012, 826-834 | DOI: 10.4319/lo.2012.57.3.0826

ABSTRACT: We demonstrate that the distribution of ribulose-1,5-bisphosphate carboxylase/oxygenase (RuBisCO) in the deep North Pacific is a unique tracer for the accumulation of biochemically identifiable organic residue of the export flux. RuBisCO is found both dissolved and assembled in microgels in a dynamic gel-to-dissolved-to-gel continuum that may protect RuBisCO from degradation in the water column. High concentrations are located below biologically productive equatorial and subarctic systems, and low concentrations are associated with the subtropical gyre. RuBisCO tracks the advective transport of export products along deep circulation pathways of the ocean interior, serving as a quantifiable biochemical tracer of modern organic carbon exported to and resident in the deep ocean.

Article Links

[Download Full-text PDF](#)

[Return to Table of Contents](#)

Please Note

Articles in L&O appear in PDF format. Open access articles may be freely downloaded by anyone. Other articles are available for download to subscribers only, or may be purchased for \$10 per article. All L&O articles are moved into Open Access after three years.