



## Effect of ultraviolet light on dissolved nitrogen transformations in coastal lagoon water

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**ABSTRACT:** The effect of ultraviolet radiation on the production of inorganic nitrogen, urea, and amino acids from aquatic dissolved organic matter (DOM) was investigated for waters from Hog Island Bay, a coastal lagoon in Virginia. Waters representing distinct sources of DOM to the lagoon were subjected to UV light mimicking the natural solar spectrum. Dissolved organic nitrogen concentrations did not change measurably during the 36-h incubation, while calculated dissolved organic carbon concentrations dropped by up to 17%, resulting in decreases in estimated C/N for some samples. Nitrate and urea levels were not consistently altered in the light, while ammonium photoproduction rates of up to  $0.032 \mu\text{mol N L}^{-1} \text{h}^{-1}$  were observed. Changes in dissolved free amino acids were measured in a groundwater sample obtained from a shoreline seep, and this sample exhibited photoproduction of glycine and alanine at rates of  $0.8\text{--}1.1 \text{ nmol N L}^{-1} \text{h}^{-1}$ . The rates of ammonium and amino acid formation, when scaled up to estimate photoproduction in the lagoon system, appeared to be minor relative to other sources to and fluxes within the system.

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