



## Ammonium uptake by seagrass epiphytes: Isolation of the effects of water velocity using an isotope label

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**ABSTRACT:** In a series of flume experiments, <sup>15</sup>N-labeled ammonium was used to isolate the effects of water velocity on ammonium uptake by epiphytes from that of an assemblage of organisms that included seagrass leaves, epiphytes, and phytoplankton. Rates of NH<sub>4</sub><sup>+</sup> uptake for epiphytes, seagrass leaves, and the total assemblage were dependent on water velocity. Ammonium uptake rates for epiphytes, normalized to chlorophyll a, increased by an order of magnitude (0.65 to 6.8 × 10<sup>28</sup> g N removed [mg Chl a]<sup>-1</sup> s<sup>-1</sup>) over a range of velocity (0.02-0.20 m s<sup>-1</sup>) and were correlated to uptake by the entire assemblage. The relationship between NH<sub>4</sub><sup>+</sup> uptake and velocity for the epiphytes was within the range expected for mass transfer limited uptake, which suggests that water flow strongly influences NH<sub>4</sub><sup>+</sup> uptake by this important component of seagrass communities. Our results demonstrate that isotopically labeled nutrients can be used to isolate the effects of water velocity on rates of nutrient uptake by an individual component of a community and to evaluate how uptake rates for the component compare to those of the community as a whole.

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