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## Photochemical degradation of dimethylmercury in natural waters

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Photochemical degradation of dimethylmercury (DMHg) could constitute an important source of monomethylmercury (MMHg) in surface waters, thus impacting Hg bioaccumulation and exposure risks. Despite this, few have studied this process, and no consensus has been reached on whether DMHg photodegradation occurs in nature. We used isotope labeling techniques to study DMHg and MMHg photodegradation in natural waters when exposed to artificial UV light. Our results confirm that DMHg degrades at rates comparable to those of MMHg for a variety of natural waters. We corroborated these findings in outdoor experiments, where samples containing DMHg and MMHg were exposed to natural sunlight. Comparison of the rates of photodecomposition for DMHg and MMHg in various water types imply differences in underlying reaction mechanisms for the species. To learn more about the factors controlling DMHg photodecomposition, we performed additional experiments where the effects of factors such as DOC, Cl<sup>-</sup> and O<sub>2</sub> concentrations on DMHg and MMHg photodegradation rates were compared. Our findings indicate that the DMHg → MMHg flux through DMHg photodecomposition could represent a significant vector for MMHg production in surface oceans.