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A global database of nitrogen and phosphorus excretion rates of aquatic animals

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Abstract. Animals can be important in modulating ecosystem-level nutrient cycling, although their importance varies greatly among species and ecosystems. Nutrient cycling rates of individual animals represent valuable data for testing the predictions of important frameworks such as the Metabolic Theory of Ecology (MTE) and ecological stoichiometry (ES). They also represent an important set of functional traits that may reflect both environmental and phylogenetic influences. Over the past two decades, studies of animal-mediated nutrient cycling have increased dramatically, especially in aquatic ecosystems. Here we present a global compilation of aquatic animal nutrient excretion rates. The dataset includes 10,534 observations from freshwater and marine animals of N and/or P excretion rates. These observations represent 491 species, including most aquatic phyla. Coverage varies greatly among phyla and other taxonomic levels. The dataset includes information on animal body size, ambient temperature, taxonomic affiliations, and animal body N:P. This data set was used to test predictions of MTE and ES, as described in Vanni and McIntyre (2016; Ecology DOI: 10.1002/ecy.1582).

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Key words: Freshwater and marine ecosystems (lakes, rivers and oceans); invertebrates; vertebrates; body size; ecological stoichiometry; metabolic ecology; nitrogen excretion; nutrient cycling; phosphorus excretion; temperature

The complete data sets corresponding to this abstract in the Data Papers section are published electronically as Supporting Information in the online version at *[to be completed at proof stage]*.

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