

Table 3. Comparison of global rates of autotrophic inorganic carbon assimilation processes that occur in aquatic environments. For additional details of the data sources and the calculations. See 'Significance of chemolithotrophs and anoxygenic photolithotrophs in global primary productivity'

Process	Flux from inorganic carbon (Pg C yr ⁻¹)	Source
Present nitrification	0.19 – 0.4 (mean 0.3)	Raven (1996), Wuchter et al. (2006)
Present anammox	0.00017 – 0.0035 (mean 0.0018)	Strous et al. (1998), Francis et al. (2007)
Present day oxidation of biogenic sulfides by chemolithotrophs and anoxygenic photolithotrophs	0.022 – 0.043 (mean 0.033)	Mandernack & Tebo (1999), Turchyn & Schrag (2004)
Present day oxidation of hydrothermal vent sulfides	0.002	Mandernack & Tebo (1999), Turchyn & Schrag (2004)
Present day oxidation of sulfide from basalt-hosted ocean aquifers	0.001	Bach & Edwards (2003)
Present day methanogenesis from CO ₂ in wetlands and the ocean	0.039 – 0.095 (mean 0.067)	Liu & Whitman (2008)
Present day total from chemolithotrophy and anoxygenic photolithotrophy	0.26 – 0.54 (mean 0.40)	
Present day net primary productivity by marine and inland waters oxygenic photolithotrophs (99% from phytoplankton)	50	Field et al. (1998), Raven & Maberly (2005), del Giorgio & Williams (2005)
Pre-photosynthetic (Hadean–Archaean, <4 giga-annum [Ga] ago) chemolithotrophy	0.00074	Sleep & Bird (2007, 2008)
Pre-oxygenic phototosynthesis (Archaean, 3.8 Ga ago) primary production by chemolithotrophs and anoxygenic photolithotrophs	<1.2 – <5	Kharecha et al. (2005), Canfield et al. (2006)