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Evolution of hydrological, sedimentary and biogeochemical cycles in the  
the critical zone.

**Title:** Dark Carbon Fixation in the Amazon Aquatic Ecosystems

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**Abstract:**

How can microorganisms not rely on allochthonous organic carbon inputs in shade systems? The Amazon river is a turbid system and present photosynthetic rates lower than heterotrophic production which would makes the organic carbon degradation rather important than inorganic carbon fixation in organic matter production. However, there are microbial processes able to fix inorganic carbon without light energy (i.e chemosynthesis and/or anaplerotic reactions). Recent findings suggest the dark carbon fixation (DCF) is a relevant microbial process in some aquatic ecosystems, making questionable if it could contribute substantially to carbon production in the Amazon River. Here we show that DCF can contribute with 40% of HP in Amazon aquatic systems. Hence it significantly contributes with organic carbon available to the systems and adds another source of food for consumers. This study shows autotrophic processes important even in light limited waters, having implications for our fundamental understanding for carbon cycle and food web dynamics.

Abstract published on this website::

<http://www.ore-hybam.org/index.php/eng/Documents/Scientific-meetings/VIIth-HYBAM-scientific-meeting-Niteroi-20172/Thematic-sessions/11.-Biogeochemical-cycles-2>