METHODS

Dry, homogenized sediment samples were extracted with 90% dichloromethane and 10% methanol using an accelerated solvent extractor. Extracts were transesterified with 5% hydrochloric acid and 95% methanol at 70°C for 12hrs ($\delta^{13}C_{methanol}$ = -47.25 ± 0.10, n=3). Excess milliQ water was added to the hydrolyzed products and the lipids were partitioned into hexane. The hexane extracts were dried by passing through a column of anhydrous sodium sulfate and separated into 3 fractions by column chromatography (column: 5 cm x 40 mm Pasteur pipette, 5% water-deactivated silica-gel, 100-200 mesh; alkanes eluted with hexane, FAMEs eluted with 5% ethyl acetate in hexane). Urea adduction was used to remove branched and cyclic compounds, from straight chain ($C \geq 14$) molecules. Molecular-level carbon isotopic measurements were obtained using a gas chromatograph - isotope ratio monitoring - mass spectrometer (GC-irm-MS) consisting of a HP6890 GC (equipped with a CP sil 5 CB column (60m × 0.25mm, film thickness 0.25μm); and a Gerstel programmable injector interfaced via a combustion furnace at 850°C to a Finnigan MAT Delta^{Plus} MS. Samples were injected in triplicate along with reference standards of known isotopic composition. Individual fatty acid $\delta^{13}C$ values were corrected for derivative carbon based on isotopic mass balance.