Assessing inorganic carbon export from intertidal salt marshes using direct, high-frequency measurements

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Measuring and modeling DIC in the salt marsh at Sage Lot Pond



Two methods to estimate DIC: **CHAN**nelized **O**ptical **S**ensor (CHANOS) (Wang et al. 2015) and Multiple Linear Regression (MLR) (Wang et al. 2016)



DIC directly measured by CHANOS vs DIC estimated by MLR



Rain and groundwater influences on DIC concentrations



MLR is a robust method to measure DIC fluxes – good agreement with CHANOS DIC fluxes



On average,

DIC concentration: MLR <1% different than CHANOS

DIC flux: MLR <20% different than CHANOS

	July (N=2470)	December (N=1037)
Mean DIC residual (umol kg ⁻¹)	-23 ± 150	-3 ± 170
Mean DIC flux residual (mol s ⁻¹)	-0.03 ± 0.2	-0.008 ± 0.1