

Shull - Devol

Goals: Determine rates of organic-matter supply to the benthos, sedimentary denitrification (and other metabolisms), variation in benthic community structure and bioirrigation, and how they might change with changes in timing of ice retreat.

Analysis	Measurement	Method	Instrumentation	Reference
Flux cores (4 replicates)	O ₂ /Ar, N ₂ /Ar NH ₄ NO ₃ + NO ₂	MIMS Colorimetric Colorimetric	<u>Quadrupole</u> <u>ALPKEM autoanalyzer</u> <u>ALPKEM autoanalyzer</u>	<u>Kana, 1998</u> <u>Whitledge et al. 1981</u> <u>Whitledge et al. 1981</u>
Porewater profiles				
Squeezer	O ₂ NO ₃	<u>Amperametric</u> NO ₃ Colorimetric		<u>Brandes and Devol, 1995</u> <u>Brandes and Devol, 1995</u>
Microelectrode	O ₂ NO ₃ + NO ₂	<u>Amperametric</u> <u>Amperametric</u>	<u>UNISENSE electrode</u> <u>UNISENSE biosensor</u>	<u>Revsbech 1989</u>
Sections (3 replicates)	O ₂ NO ₃ + NO ₂ NH ₄ pH HS	<u>Amperametric</u> <u>Amperametric</u> Colorimetric Electrode Ion-selective electrode	<u>UNISENSE electrode</u> <u>UNISENSE biosensor</u> <u>ALPKEM autoanalyzer</u>	<u>Revsbech 1989</u> <u>Whitledge et al. 1981</u>
Amammox	N-isotopes	incubation	<u>Finigan 253</u>	<u>Gilmour et al., 1998</u> <u>Kuypers et al., 2003</u>
Sulfate Reduction		³⁵ SO ₄ incubation		<u>Fossing et al., 1989</u>
Solid-phase				
Profiles (1 replicate)	²¹⁰ Pb ²²² Rn	γ spectrometry α spectrometry Scintillation	<u>Canberra GL 2820R</u> <u>Canberra 7401VR</u> <u>Applied techniques</u> <u>AC/DC-DRC-MK10-2</u>	<u>Shull 2001</u> <u>Nittrouer 1979</u> <u>Mathieu et al. 1988</u>
	TOC TN Porosity Grain size	CHN CHN Gravimetric Sieve, pipette method	<u>CE Elantech EA1112</u> <u>CE Elantech EA1112</u>	<u>Hedges and Stern 1979</u>
Burrow distributions		CT-scanning	<u>Picker 5000, St. Joseph's Hospital, Bellingham, WA</u>	<u>Shull and Yasuda 2001</u>

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