

AD-A191 766

REAL-TIME DETECTION OF DISSOLVED FREE AMINO ACIDS AND
AMMONIUM IN SEAWATER(U) NAVAL OCEAN SYSTEMS CENTER SAN
DIEGO CA S H LIEBERMAN ET AL FEB 88

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REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY SELECTED			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE MAR 11 1988			5. MONITORING ORGANIZATION REPORT NUMBER(S)	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) ce D			5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION Naval Ocean Systems Center		6b. OFFICE SYMBOL (if applicable) NOSC		7a. NAME OF MONITORING ORGANIZATION Naval Ocean Systems Center
6c. ADDRESS (City, State and ZIP Code) San Diego, California 92152-5000			7b. ADDRESS (City, State and ZIP Code) San Diego, California 92152-5000	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION Naval Facilities Engineering Command		8b. OFFICE SYMBOL (if applicable) NFAC		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State and ZIP Code) 200 Stovall Street Alexandria, VA 22332			10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. PROJECT NO. TASK NO. AGENCY ACCESSION NO. 61152N ME65 RR0000101 DN306 250	
11. TITLE (Include Security Classification) Real-Time Detection of Dissolved Free Amino Acids and Ammonium in Seawater				
12. PERSONAL AUTHOR(S) S. H. Lieberman, and M. R. Wing				
13a. TYPE OF REPORT Presentation/speech		13b. TIME COVERED FROM Jan 1988 TO Jan 1988		14. DATE OF REPORT (Year, Month, Day) February 1988
15. PAGE COUNT 1				
16. SUPPLEMENTARY NOTATION				
17. COSATI CODES FIELD GROUP SUB-GROUP			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
19. ABSTRACT (Continue on reverse if necessary and identify by block number) Dissolved free amino acids (DFAAs) and ammonium are important nutrients in marine microbial food webs. DFAA concentrations are most often studied by high-pressure liquid chromatography of fluorescent derivatives with o-phthalaldehyde (OPA). This procedure is laborious, requires extensive sample handling, and yields results hours or days after sampling. A fluorescent monitoring system for DFAAs, other primary organic amines, and ammonium was developed that is automated and continuous, and provides results in real-time. A gently pumped stream of seawater is reacted with an OPA/mercaptoethanol/buffer reagent and passed under the tip of a fiber optic probe supplying excitation light below 400 nm. The fluorescent signal, with a maximum at 455 nm, is transmitted by the probe to an optical multichannel analyzer employing a linear photodiode array. A plot of fluorescent intensity vs. time is recorded. The signal is linear in the range 1 to 100 nM alanine equivalents. A 24 hour time series taken at a station in San Diego harbor will be presented, with an assessment of the system's utility in monitoring diurnal biogeochemical and tidal cycles. Presented at the American Geophysical Union, Ocean Sciences Meeting, 18-22 January 1988, New Orleans, LA.			DTIC COPY INSPECTED 1	
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT ☐ DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL S. H. Lieberman			22b. TELEPHONE (Include Area Code) (619) 553-2778	
			22c. OFFICE SYMBOL Code 522	

DD FORM 1473, 84 JAN

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