



Applied Physics Laboratory  
College of Ocean and Fishery Sciences, University of Washington

30 October 1996  
Serial 5C4022


To: Dr. Eric Schulenberger  
ONR Code 323  
Ballston Tower #1  
800 N. Quincy Street  
Arlington, VA 22217-5660

From: Darrell R. Jackson, Principal Electrical Engineer

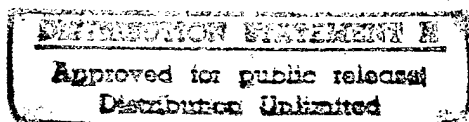
Subj: ONR Grant N00014-95-1-1300

Encl: (1) Final DURIP Report, "High Resolution Benthic Acoustic Measurement System"

Enclosed please find three copies of report that completes the subject grant requirement for a final technical report.

  
Darrell R. Jackson

cc: ONR Administrative Grants Officer (June Hawley), 1 copy + Form 298  
Director, Naval Research Laboratory, Code 2627, 1 copy  
✓ Defense Technical Information Center, 2 copies + Form 298  
ONR Code 00C1 (Mr. William F. McCarthy) 1 copy  
Grants & Contracts, University of Washington (Sinh Simmons), 1 copy



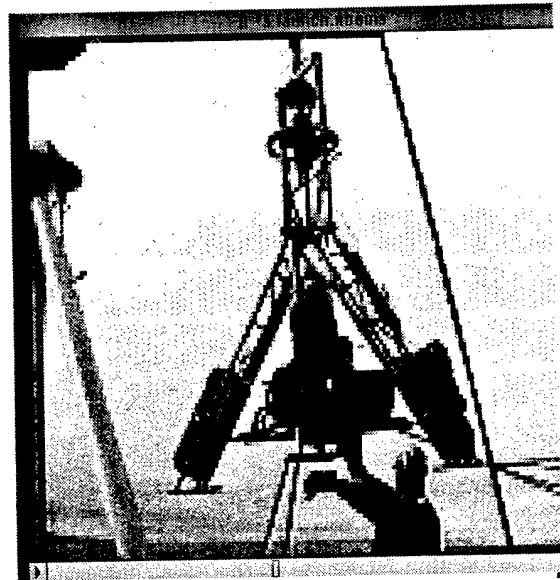
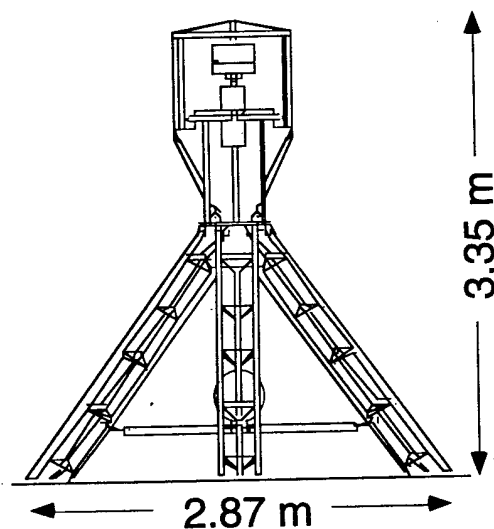
DTIC QUALITY INSPECTED 2

19961113 001

**FINAL REPORT**  
**DURIP Project:**  
**High-Resolution Benthic Acoustic Measurement System**

A new sonar system has been constructed and successfully fielded. The system, designated as the Accelerated Benthic Acoustic Measurement System (XBAMS), is an autonomous, bottom-mounted, circularly-scanning sonar that permits remote observation of benthic biological and physical processes over a large area (100 m diameter circle) and long times (weeks to months) in the littoral zone.

The figure below shows XBAMS. The sonar mounted on the top of the tripod operates at 300 kHz with horizontal beamwidths of about 1 degree. The system completes a scan of 360 steps in 6 minutes. This sampling rate makes it possible to monitor benthic biological activity without aliasing problems encountered with the older BAMS system. XBAMS can be deployed in water depths as shallow as 15 meters with a 2 ton crane.



Left side shows an engineering drawing of XBAMS. The right side shows XBAMS as it is being deployed off Northern California in conjunction with the STRATFORM project.

XBAMS was deployed off the coast of California in about 60 meters of water in June 1996 during the STRATFORM project. It successfully captured over 200 acoustic scans during its one month deployment.

Darrell R. Jackson and Kevin L. Williams

30 October, 1996

# REPORT DOCUMENTATION PAGE

*Form Approved*  
*OPM No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

<b>1. AGENCY USE ONLY (Leave blank)</b>	<b>2. REPORT DATE</b> 30 October 1996	<b>3. REPORT TYPE AND DATES COVERED</b> Final	
<b>4. TITLE AND SUBTITLE</b> Final Report -- DURIP Project: High Resolution Benthic Acoustic Measurement System			<b>5. FUNDING NUMBERS</b> Office of Naval Research Grant N00014-95-1-1300
<b>6. AUTHOR(S)</b> Darrell R. Jackson and Kevin L. Williams			
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> Applied Physics Laboratory University of Washington 1013 NE 40th Street Seattle, WA 98105-6698			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>  N/A
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b>			<b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>
<b>11. SUPPLEMENTARY NOTES</b>			
<b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b>			<b>12b. DISTRIBUTION CODE</b>
<b>13. ABSTRACT (Maximum 200 words)</b>  A new sonar system has been constructed and successfully fielded. The system, designated as the Accelerated Benthic Acoustic Measurement System (XBAMS), is an autonomous, bottom-mounted, circularly scanning sonar that permits remote observation of benthic biological and physical processes over a large area (100 m diameter circle) and long times (weeks to months) in the littoral zone.			
<b>14. SUBJECT TERMS</b>  Ocean Bottom                      Sonar Sediment			<b>15. NUMBER OF PAGES</b> 1
			<b>16. PRICE CODE</b>
<b>17. SECURITY CLASSIFICATION OF REPORT</b> Unclassified	<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b> Unclassified	<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b> Unclassified	<b>20. LIMITATION OF ABSTRACT</b> Unlimited