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E73 10097
CR-130525

1. Report No.		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle USE OF ERTS-1 TO UTILIZE AND APPLY MARINE STATION DATA TO STUDY OF PRODUCTIVITY ALONG EASTERN SHELF EXPANDED WATERS OF U.S. (Task 3)				5. Report Date	
				6. Performing Organization Code	
7. Author(s) Harold G. Marshall and David E. Bowker				8. Performing Organization Report No.	
9. Performing Organization Name and Address Old Dominion University Research Foundation P.O. Box 6173 Norfolk, Va. 23508				10. Work Unit No.	
				11. Contract or Grant No. NAS5-21816	
12. Sponsoring Agency Name and Address National Aeronautics and Space Administration Goddard Space Flight Center Greenbelt Road Greenbelt, Maryland 20771				13. Type of Report and Period Covered Semi-Annual Report Aug. 4, 1972-Jan. 31, 1973	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract					
17. Key Words (Selected by Author(s))			18. Distribution Statement		
19. Security Classif. (of this report)		20. Security Classif. (of this page)		21. No. of Pages	22. Price*

*For sale by the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

(E73-10097) USE OF ERTS-1 TO UTILIZE AND APPLY MARINE STATION DATA TO STUDY OF PRODUCTIVITY ALONG EASTERN SHELF EXPANDED (Old Dominion Univ. Research Foundation) 4 p HC \$3.00	N73-17308 Unclas G3/13 00097
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PREFACE

The investigation of phytoplankton populations along the eastern coast of the United States has been conducted by the principal investigator since 1965. Using vessels from the National Marine Fisheries Service, Old Dominion University, and the Duke University Marine Laboratories, these collections have been continued with the purpose of correlating sea truth data and satellite-gained information over these waters. The major purpose was to establish relationships between known values of sea productivity with contour plots of sea surface and satellite data made by computer services at NASA Langley Research Center.

INTRODUCTION

The major purpose of the study is to identify levels of productivity in waters off the eastern coast of the United States using data obtained from vessels at sea and the Earth Resources Technology Satellite Program. These vessels are scheduled in the MARMAP program to obtain water samples at over 100 stations between Cape Cod and Florida. Arrangements have been made with the National Marine Fisheries Service to obtain surface water samples at these stations during the regular cruise program. In addition, chlorophyll values, surface temperature, and salinity readings are also taken. Water samples are returned to the principal investigator for phytoplankton analysis at Old Dominion University. Qualitative and quantitative values are made for true biomass figures for phytoplankton. These may be related to the chlorophyll data, location, currents, salinity, etc., and more specifically the results from the satellite.

REPORT

To date there have been two extensive sea collections made by the research vessels: Delaware II (July 1972), and the Albatross IV (January-February 1973). Collections at sea had been set for satellite coverage during the 1972 summer overpasses but delay in launch and subsequent cloud cover over the ship collection area proved significant drawbacks. The ship was in port in August. All collection data are now being processed and will yield phytoplankton and other information. The Albatross IV is presently at sea and sea collections have already taken place for the 22-26 January 1973 period. To support this information, the Old Dominion University vessel Linwood Holton has been used to obtain sea truth data off the Chesapeake Bay. When these samples have been returned they will be examined for phytoplankton data.

To date a graduate research assistant has been employed and the inverted plankton microscope has been received. The research assistant has been trained

in the methods required and has already made excellent progress in examining the water samples. Data products have been received and examined at the Old Dominion University Earth Resources Image Analysis Laboratory. A portion of the salary for the student assistant in this laboratory comes from this program. February 9-13, 1973 will also be a sampling period at sea.

PROGRAM FOR NEXT REPORTING INTERVAL

The program will include the following:

1. The sea samples from the Albatross IV cruise will be returned to the Old Dominion University laboratory in early March. These will be examined following completion of the Delaware cruise series.
2. After this sea truth data is established, comparison to satellite information will be sought. The co-investigator for this project is Dr. David E. Bowker of NASA Langley Research Center. Close utilization of computer services will be made at this time.

CONCLUSION

The program is progressing as planned. Examination of plankton components and determining the numerical values for over 100 samples is very time consuming. Final interpretation of results will require the full term of the project for significant statements.