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# **Crisis Science: Investigations in Response to the Argo Merchant Oil Spill**



**MIT Sea Grant  
Program**

**Massachusetts  
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Cambridge  
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Crisis Science: Investigations  
in Response to the  
Argo Merchant Oil Spill

by

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## ABSTRACT

The Argo Merchant oil spill on Nantucket Shoals in December, 1976, was the focus of a massive scientific investigation. More than 200 scientists were involved in predicting and studying the fate and effects of the spill, at a cost exceeding \$800,000.

The report outlines three reasons scientists might want to take action following a spill and points out that previous post-spill activities have been somewhat less than successful in meeting these goals. The scientific work following the Argo Merchant spill is then reviewed as a case study of such post-spill science. The story of how the scientific response developed is told more or less chronologically and the scientific quality of the various endeavors evaluated.

It is found that despite its size, the scientific follow-up to the spill was not as good as it could have been. This was partly because of science's limited understanding of spills and limited ability to interpret data; but it was also partly because of logistical and institutional factors. The case is made that studying a spill is in many ways as demanding as trying to clean it up. A quick and efficient response is needed on extremely short notice to prevent valuable data from being lost and to provide scientific input into the cleanup effort in a timely manner. It is argued that it is virtually impossible to expect a good response to be mounted from scratch after a spill occurs. Some sort of research contingency plan is needed. The report concludes with some guidelines for formulation of such a plan.

## ACKNOWLEDGEMENTS

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The work presented in this report was performed by Mr. Andrew J. Pollack, Research Assistant. Technical supervision was provided by Dr. Keith D. Stolzenbach, Associate Professor of Civil Engineering. Professor J.J. Connor and the MIT Sea Grant program are also acknowledged for providing the initial impetus for this project.

This report could not have been done without the cooperation of the more than 50 persons who granted the authors interviews in spite of their busy schedules. It would be too lengthy here to mention each by name (a full list appears at the end of the bibliography) but their helpfulness is gratefully acknowledged.

So is the cooperation of Lt. Chris Gregory and Ensign Lee Apostolos of the Coast Guard's Marine Safety Division in Boston, who granted frequent and easy access to Coast Guard message traffic and files relating to the Argo Merchant incident.

Special thanks, also, to Mark Pape for his invaluable help in preparing the illustrations.

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## FOREWORD TO THE FINAL REPORT

A draft version of this report was prepared in October 1977. As limited resources precluded wide distribution of the draft report, it was sent for review only to a subset of the persons interviewed during the course of the study. The final report reflects revisions made on the basis of comments received from a number of these persons and organizations. Nevertheless, it should be clearly stated that the authors alone are responsible for conclusions and judgements expressed in the report and that none of the persons who were interviewed or who reviewed the draft should be considered to have endorsed the report in any way.

### Related Sea Grant Reports

- Campbell, Brad, Ed Kern, and Dean A. Horn. IMPACT OF OIL SPILLAGE FROM WORLD WAR II TANKER SINKINGS. MITSG 77-4. NTIS: PB-265 857/AS. Cambridge: Massachusetts Institute of Technology, 1977. 85pp. \$2.00.
- Milgram, Jerome. BEING PREPARED FOR FUTURE ARGO MERCHANTS. MITSG 77-10. NTIS: PB 269/AS 696. Cambridge: Massachusetts Institute of Technology, 1977. 48 pp. \$2.00.
- Stolzenbach, Keith D., Ole S. Madsen, E. Eric Adams, Andrew Pollack, and Cortis Cooper. A REVIEW AND EVALUATION OF BASIC TECHNIQUES FOR PREDICTING THE BEHAVIOR OF SURFACE OIL SLICKS. MITSG 77-8. NTIS PB-268 220/AS. Cambridge: Massachusetts Institute of Technology, 1977. 305 pp. \$5.00.
- Stewart, Robert J. THE INTERACTION OF WAVES AND OIL SPILLS. MITSG 75-22. NTIS: PB-262 458/AS. Cambridge: Massachusetts Institute of Technology, 1976. 201 pp. \$4.00.

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