

Foreword

It is a common saying that a project is not finished until it is published, and it is generally recognized that mountains of grey literature emerging from major projects are inadequate to qualify as true publications of the work. While project participants are commonly free to publish their results in the open literature, those publications tend to be scattered and incomplete.

A good deal of credit is therefore due to the management of the BIOS Project for working so diligently to see the project through to the end. It is no mean task for a project manager to hang onto his people to that extent — to see all the final results appear in the primary literature, and best of all to see them appear as a coherent whole in a single compilation. In the present case, the funding agencies are to be commended also for supporting the project to that end.

The BIOS manuscripts were compiled by Gary Sergy, acting as guest editor. This was not easy. Care had to be taken to have the authors rewrite the project reports in the style of academic research papers, and this required a good deal of reconstruction, involving integration of the results and comprehensive interpretation of the significance of the total project.

The Arctic Institute was pleased to help with the completion of the project. After the BIOS manuscripts were compiled they were transferred to *Arctic*, where they were subjected to the usual *Arctic* review process. All reviewers were selected by *Arctic*'s editor and all reviews were treated in the usual way, with referral back to the authors for revisions and, in some cases, further review. Although everyone understood the urgency of completing the project, the review and revision process still took twelve months.

The Arctic Institute recognizes the BIOS Project as a major research undertaking in northern waters addressing a problem of major proportions. We are confident that the results of the project as published in this special supplementary issue of *Arctic* will become a standard reference for everybody undertaking arctic work involving the possibility of environmental damage from petroleum hydrocarbons.

Gordon Hodgson
Editor, *Arctic*

Introduction

The papers comprising this supplementary issue of *Arctic* emerged from the Baffin Island Oil Spill (BIOS) Project, a comprehensive set of scientific investigations on the problems attending marine oil spills in the Arctic.

Through an approach using experimental releases of crude oil, the project participants acquired data on the short- and long-term fate and effects of crude oil stranded on an arctic shoreline and chemically dispersed oil in the arctic nearshore environment, as well as data on the effectiveness of selected shoreline cleanup techniques. The information so gained has improved our capability of assessing the effects of oil spills threatening or contaminating arctic coastlines. So also, it has given a better understanding of how to select countermeasures in such cases. Another result of the BIOS Project has been the compilation of a comprehensive site-specific data base that increases our knowledge about the physical, chemical and biological processes operating in common arctic marine ecosystems.

The mass of data generated during the course of the project led to a search for an appropriate mechanism for presenting the findings coherently to the scientific community. Annual working reports released by the project office were timely, but they were not integrated with one another. Further, they contained only interim findings. Consequently, to consolidate the findings and to conclude the project, BIOS scientists were asked to prepare scholarly manuscripts for publication in the academic literature. The scope and content of the manuscripts were coordinated to provide general coherence and consistency. Accordingly, the manuscripts were submitted to *Arctic*, where they were subjected to regular peer review and subsequently compiled in this single supplementary issue for the entire

readership of *Arctic*. In this way, all reasonable steps were taken to achieve quality, accuracy and accessibility to the results of the BIOS Project.

The papers comprising this issue reflect an integrated multidisciplinary approach fundamental to the project. The first paper provides a view of the entire BIOS Project: the overall objectives, design and a summary of the conclusions reached. Next, a group of eight papers presents the physical, chemical and biological setting of the experimental oil spill area on Baffin Island. These describe the baseline conditions and studies leading up to the spills. Next, details of the experimental oil releases are presented. The chemical fate of crude oil in four different environmental compartments is then assessed in individual papers. These are followed by six papers dealing with various types of biological effects monitoring studies and then two papers dealing with shoreline cleanup tests. Lastly, two papers deal with related under-ice experiments conducted at the same site.

The study results described in this issue provide a benchmark in arctic oil spill management. Although major studies have been conducted worldwide in controlled ecosystems and field sites exposed to oil, none provides a multidisciplinary data base so directly applicable to the northern Canadian environment. Justifiably, Canadian scientists and their colleagues in other countries can be proud of the progress in this specialized area of cold climate marine research, as well as in the successful cooperative approach employed in this particular study.

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