Abstract

The Exxon Valdez oil spill in Prince William Sound, Alaska, in March 1989, was the largest crude spill to date in US waters. It prompted many studies on the fate, transport and effects of the oil on biota in Alaskan waters, as well as on archaeological sites. This book consists of 25 research papers presented at an ASTM Symposium in April 1993. This introductory chapter summarizes topics and highlights of those papers, covering chemistry and fate, shoreline impacts, effects on fish, fisheries and wildlife, and impacts on archaeological sites, and discusses some of the issues arising from the study of this spill. Some lessons learned from this research included: • The need for accurate identification of the spilled oil-derived hydrocarbons in all samples, • The extensive movement of the oil down the Alaskan coast, with its unique fate characteristics, • The strong chemical basis required for interpreting the biological significance of sedimented hydrocarbons, • The difficulty of separating oil effects on biological populations from changes due to other variables (biotic and abiotic), • The need for sensitive hydrocarbon biomarkers, and • The need to have established definitions and criteria to determine whether biological recovery had occurred.

To provide a context for the papers in this volume, other published literature and symposia on this spill are discussed. Some of the more important remaining issues include: • The duration of effects of the residual oil, • The extent of intertidal impact and recovery, • The extent and duration of impacts of the spill on fisheries and wildlife populations, including seabirds and sea otters.

Additional issues, of considerable importance, but not concerned primarily with the fate and effects of the spilled oil, include: • The need for the oil spill community as a whole to agree ahead of time on how to study such accidental spills, and select appropriate monitoring tools. • The effect of impending litigation on the type and extent of the research conducted.

This volume provides the reader with detailed insights into the ecological impacts of such accidents in cold sub-arctic waters, and some of the outstanding scientific issues on the effects and recovery patterns after such spill events.

Keywords:
Exxon Valdez, Prince William Sound, petroleum, hydrocarbons, fate and effects of oil spills, oil spill source identification, oil spill shoreline impacts, fisheries, wildlife, birds, sea otters, ecological recovery

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