Bioremediation for Marine Oil Spills

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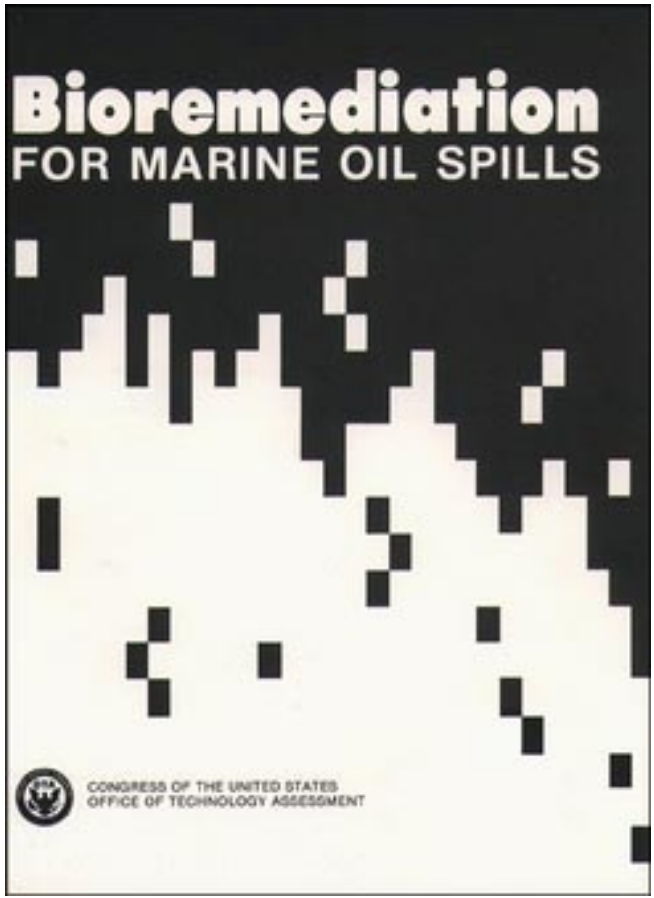

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Foreword

If anything positive has resulted from the massive *Exxon Valdez oil* spill, it is that this environmental calamity increased the Nation's awareness of the shortcomings of its capability to fight oil spills and prompted it to take steps to correct this situation. In the 2 years since this spill occurred, Congress passed major oil pollution legislation (the Oil Pollution Act of 1990); private industry established and provided significant funding for the Marine Spill Response Corp.; and Federal agencies reevaluated their responsibilities, revised contingency plans, and took steps to improve response technologies.

In addition to concern with refining the efficiency and reliability of the existing response technologies, both the public and private sectors have sought to develop innovative new technologies for responding to spills. bioremediation is one such technology. Although the possibility of using the capabilities of oil-degrading microorganisms to accelerate the natural biodegradation of oil has been discussed for years, it is only recently that some of the practical problems associated with this idea have begun to be addressed. The *Exxon Valdez* spill, in particular, gave researchers a rare opportunity to evaluate the feasibility of using bioremediation as an oil spill countermeasure.

This OTA background paper evaluates the current state of knowledge and assesses the potential of bioremediation for responding to marine oil spills. Our basic message is a dual one: we caution that there are still many uncertainties about the use of bioremediation as a practical oil spill response technology; nevertheless, it could be appropriate in certain circumstances, and further research and development of bioremediation technologies could lead to enhancing the Nation's capability to fight marine oil spills. The request for this study came from Senator Ted Stevens, a member of OTA's Technology Assessment Board, and the senior senator from the State of Alaska, where bioremediation was tested on beaches polluted by oil from the *Exxon Valdez.*

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