Microbes as Environmental Cleaners Case Study

On March 24, 1989,the oil tanker *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound, Alaska. Almost 41 million liters of crude oil spilled into the beautiful, pristine wilderness of the Sound. At this time (before the 2010 spill in the Gulf of Mexico), this was the largest oil spill in U.S. history. Americans watched in horror as about 2,000 kilometers of some of the most spectacular shores in the country were reduced to oil-covered graves for indigenous flora and fauna.

As anyone who has washed clothes knows, oil stains can be difficult to remove. Extracting spilled oil from the natural environment is far more arduous and complex than removing oil stains from laundry. But just as in cleaning heavily stained clothes, the cleanup response team used hot water—specifically, steam under high pressure—to remove oil from the shores. At first this technique seemed to work. The shores superficially appeared as they had been before the oil spill; however, closer examination revealed that oil remained. The high-pressure steam cleaning had forced much of the oil deeper into the rocky shores of the Sound. Clearly, an additional solution was needed.

* Do you think steam cleaning was beneficial to the cleanup process?
* Can you think of some approaches environmental microbiologists might have used to speed up bioremediation in Prince William Sound?