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# Current Status of Marine Water Microbiology

 Springer

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# Marine Microorganisms and Environmental Bioremediation

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Front Matter

[Download chapter PDF](#) 

Pages 167-167

---

## Pollution in Marine Ecosystem: Impact and Prevention

Madhumita Ghosh Datta

Pages 169-191

---

## Source and Effect of Oil Spills on Associated Microorganisms in Marine Aquatic Environment

Mrinalini Chandra Mohan, Varada S. Damare

Pages 193-220

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## Heavy Metal Pollution in Water: Cause and Remediation Strategies

Lázaro Adrián González-Fernández, Nahum Andrés Medellín-Castillo, Amado Enrique Navarro-Frómeta, Candy Carranza-Álvarez, Ventura Castillo-Ramos, Manuel Sánchez-Polo et al.

Pages 221-262

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# Source and Effect of Oil Spills on Associated Microorganisms in Marine Aquatic Environment

Chapter | First Online: 10 December 2023

pp 193–220 | [Cite this chapter](#)

[Mrinalini Chandra Mohan](#) & [Varada S. Damare](#) 

 536 Accesses

## Abstract

Crude oil is majorly used and is transported globally via waterways. Consequently, the occurrence of oil spills has increased due to anthropogenic and natural activities. In the event of an oil spill, the oil can either remain on the surface of the water column or can get dispersed into the littoral zone. The oil that does not get dispersed gets carried to the coastal region by the water currents and causes harm to the coastal organisms. When the oil gets dispersed, it affects a wide range of marine organisms such as marine microorganisms, fishes, sea birds, marine mammals etc. These organisms bring about the bioaccumulation and the biomagnification of the toxic components of crude oil up the food chain. Oil spills affect the production of eggs in fishes and serves lethal to the fish larvae. Oil also causes the smothering of fur and feathers in sea otters and sea birds and cause them to drown. Various coastal and offshore ecosystems are also highly impacted by the presence of oil, which causes damage to the surrounding vegetation and the organisms living there. In the case of marine microorganisms, oil seems to cause a change in composition of the normal flora in the environment. Only microbes that have the potential to survive in the presence of oil will grow, and these microbes secrete biosurfactants and specific degradative enzymes. This property of the microorganisms can be utilized for the treatment of marine oil spills. This review discusses various sources of oil spills in the marine and coastal ecosystems. It also explains the impacts of oil spills on various marine microorganisms, their adaptive responses and current status of research work on this aspect. The application of marine microorganisms to treat oil spills is also emphasized upon.

