

An alternative to chemical remediation of oil spills at coral reef and adjacent sites

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Video Byte

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Abstract

Coral reefs are especially sensitive to environmental changes, which is evident from mass “bleaching” events, where corals expel the microalgae living in their cells. Reefs have suffered during both climate change and oil contamination, and chemical remediation efforts can harm corals further. A recent study sought to evaluate the impacts of oil contamination and find potential alternatives to chemical dispersants. Using a mesocosm experiment with the fire coral *Millepora alcicornis*, which is sensitive to environmental changes, researchers constructed a realistic oil-spill scenario and compared the effects of a chemical dispersant, Corexit 9500, to those of bioremediators. They found that bioremediators – bacteria, filamentous fungi, and yeast – helped to mitigate the effects of the oil and maintain the integrity of the coral. In contrast, the chemical dispersant negatively affected host physiology and altered the coral-associated microbial community. Increases in the abundance of certain bacterial species were seen, consistent with previous studies of stressed or diseased corals. In fact, the impact of the dispersant was greater than oil alone, killing corals after only 4 days of exposure. These results emphasize the importance of considering the host-associated microbiome when evaluating the effects of both oil contamination and mitigation efforts on coral reefs.