

The effects of oil, dispersant, and emulsions on the survival and behavior of an estuarine teleost and an intertidal amphipod

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Butler, R. G., Trivelpiece, W. and Miller, D. S.

ABSTRACT:

Killifish (*Fundulus heteroclitus*) and amphipods (*Gammarus oceanicus*) were exposed separately to either a No. 2 fuel oil, AP dispersant, or emulsions of the two in a static system. Both species exhibited a concentration-dependent response to all three treatments. However, emulsification of oil with dispersant clearly increased its lethal effect on killifish survival, but did not cause a differential change in behavioral parameters such as schooling, chafing, substrate nipping, activity, or depth preference. Killifish exposed to conditions of thermal or osmotic stress were more sensitive to the lethal effects of emulsions. In contrast, emulsions caused quantitative changes in amphipod activity and precopulatory behavior, but did not increase mortality beyond that caused by exposure to oil alone. Changes in salinity had little effect on amphipod sensitivity to emulsions, but decreasing temperature did result in increased survival.