

Chemical herders could impact oil spill cleanup

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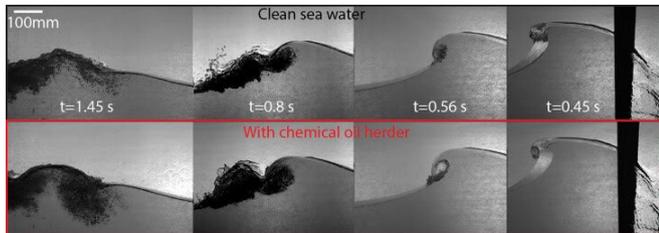


Image shows the difference in wave breaking in sea water without chemical oil herders versus with chemical oil herders. Credit: Lakshmana Chandrala, Franz O'Meally, and Joseph Katz

Oil spills in the ocean can cause devastation to wildlife, so effective cleanup is a top priority. One method to clean up oil spills is by burning, which only works if the oil is heavily concentrated in one area. [Research](#) from Johns Hopkins University shows the effects of chemical herders, which are agents that may be used to concentrate oil spills, on wave breaking.

Lakshmana Chandrala, Franz O'Meally and Joseph Katz will present their findings on Nov. 26 as a part of the American Physical Society's Division of Fluid Dynamics 72nd Annual Meeting.

In the talk, the researchers will discuss how [chemical](#) herders can facilitate the concentration of an oil slick on water, which would allow for easy burning to clean-up.

"The oil slicks are generally subjected to breaking [waves](#), which cause the oil slick to break into droplets and disperse into the water column," said Chandrala. "Stronger breaking waves disperse or break the slick more effectively, and weak waves may not spread the oil slick."

An experimental set up using a transparent tank

and a paddle to create various wave energies allowed for the scientists to study the amplifying effects and damping effects that chemical herders displayed.

"Our experiments show that the addition of chemical oil herders amplifies the strong breaking waves, which may disperse or spread the [oil slicks](#) into the [water column](#)," said Chandrala. "For effective burning, the oil should remain as a single slick. Therefore, the addition of chemical oil herders is not effective when strong waves are present on open oceans."

Conversely, chemical herders suppressed weaker waves and made the water calmer. The presentation will include further discussion on the dynamics of how waves form when chemical herders accumulate at the interface of water and air.

More information: Session Q01.00003 : "Effect of chemical herders on wave breaking" will take place in room 2A on Tuesday, Nov. 26 at 8:11 a.m. www.apsdfd2019.org/

Provided by American Physical Society

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