

This document was prepared to supplement a November 2013 PWSRCAC outreach document to support public comments on the draft ARRT dispersants plan under public review at that time.

WHY PWSRCAC DOES NOT SUPPORT THE USE OF CHEMICAL DISPERSANTS

OVERVIEW - In theory, chemical dispersants are supposed to do as their name implies: disperse surface oil into the water column, diluting it, preventing it from fouling shorelines, and speeding up the process by which bacterial action might, over time, render it harmless.

The Prince William Sound Regional Citizens' Advisory Council has concluded that its many years of research have failed to bear out the claims of dispersant proponents regarding dispersants effectiveness in our cold and seasonally low salinity waters. New research also reveals increasing concerns about low-level chronic toxic effects from oil and dispersed oil. For instance, toxic effects on pink salmon and herring embryos from low level hydrocarbon exposure include heart abnormalities that lead to permanent changes in heart anatomy and physiological performance.

Because of these concerns about whether dispersants actually work, as well as the toxic effect they have on sea life and interference with mechanical removal options, the council does not support the use of dispersants.

THE IMPORTANCE OF INDEPENDENT RESEARCH - Many of the council's concerns are based on the findings in *Oil Spill Dispersants – Efficacy and Effects (2005)*. This summary report was put together by the National Research Council (NRC). The NRC organized a broad group of researchers and experts called the "Committee on Understanding Oil Spill Dispersants: Efficacy and Effects" to write this report which can be found at: http://www.nap.edu/catalog.php?record_id=11283.

More recent government research on dispersants was conducted by the Government Accountability Office in 2012. Information from this report (*Oil Dispersants: Additional Research Needed, Particularly on Subsurface and Arctic Applications* (GAO-12-585 , May 30, 2012) can be found at: <http://www.gao.gov/products/GAO-12-585>.

The council thinks it is important that the study of dispersants and their effects are conducted independently. Many of the studies done to date have been sponsored by the oil industry and manufacturers of dispersants. This type of market-driven research adds the appearance of bias and advocacy for dispersant use. A neutral scientific investigation like the GAO report avoids these concerns.

ADDITIONAL INFORMATION

The following table lists common misconceptions about dispersants and provides scientific counter observations. These counter observations arise from our decades of research and may be helpful in understanding why the PWSRCAC does not support dispersants use in our region.

Arguments For Dispersants Use	Scientific Counter Observation
Dispersants drive oil into the water column permanently	<i>Oil spill dispersions can coalesce back into surface slicks over time so that much of the oil will resurface in 3 to 8 hours in situations with little or no mixing energy.</i>
Dispersants can assist in oil biodegradation	<i>Most studies show that dispersants suppress oil biodegradation.</i>
Chemically dispersed oil is no more toxic than naturally dispersed oil	<i>The use of chemical dispersants results in oil concentrations in the water that are at least 10 to 100 times greater than the concentration one would get without the use of chemical dispersants. This mixture is much more toxic to aquatic organisms.</i>
Dispersing oil slicks can save birds or mammals	<i>Studies haven't shown this, considerations include the fact that the oil is never 100% dispersed and the oil is spreading over a much greater surface area - increasing contact potential.</i>
Dispersants will prevent the formation of water-in-oil emulsions	<i>This hasn't been shown by peer-reviewed research.</i>
Dispersants can break water-in-oil emulsions	<i>Tests, as well as actual applications on the Exxon Valdez spill, have shown that this does not occur.</i>
Dispersants can be used in calm seas	<i>The effectiveness of dispersants in calm seas is very poor, waves or some source of mixing energy is needed for reasonable effectiveness. In calm seas, the dispersant will not stay with the oil, but will be washed away, so dispersants cannot be applied in hopes the seas will come up. Mechanical mixing energy can be applied, but may not be practical on a large scale.</i>
Dispersants mix dispersed oil throughout the water column	<i>Fresh water layering that is common in Prince William Sound region waters can halt dispersed oil at the salinity boundary which can be 1 to 2 meters in depth.</i>
Dispersants work in cold waters such as those in Prince William Sound and the Gulf of Alaska	<i>Most research on dispersant use in cold water shows that it does not work well. Some tests of dispersant effectiveness in cold marine waters that are often cited as successful are from closed volume tank tests. The PWSRCAC has expressed concerns about the validity of those tests. For example, initially dispersed oil that re-aggregated and resurfaced was not properly considered.</i>

INFORMATION ON THE WEB

More information on dispersants can be found on the council's webpage:
www.bit.ly/OilSpillDispersants.