source agencies have determined that the Federal On-Scene Coordinator has the authority, as outlined under the pre-approval definitions, to decide to use dispersants without additional consultation. In general, these pre-approval zones are in waters beyond 3 nautical miles (nm; roughly 5 kilometers [km]) of the shoreline and in water depths greater than 30 feet (10 meters). Even with establishment of these pre-approval zones, dispersant use has been infrequent, in part reflecting the difficulty of mobilizing available equipment and dispersants within a narrow window of opportunity in which they can be effective. In areas where dispersants are not often considered, it takes more time to identify, contract, and mobilize the specialized resources needed for dispersant application.

To address the concerns regarding requisite equipment and personnel capabilities, the U.S. Coast Guard in 2002 proposed changes to the oil spill contingency planning regulations measuring the minimum capabilities for dispersant application in all pre-approved zones within acceptable time frames. With implementation of the regulations, dispersant application resources will become more readily available. The potential, therefore, for using dispersants in nearshore and shallow waters, when appropriate, will increase as well.

Oil spill dispersants do not actually reduce the total amount of oil entering the environment. Rather, they change the inherent chemical and physical properties of oil, thereby changing the oil's transport, fate, and potential effects. Small amounts of spilled oil naturally disperse into the water column, through the action of waves and other environmental processes. The objective of dispersant use is to enhance the amount of oil that physically mixes into the water column, reducing the potential that a surface slick will contaminate shoreline habitats or come into contact with birds, marine mammals, or other organisms that exist on the water surface or shoreline. Conversely, by promoting dispersion of oil into the water column, dispersants increase the potential exposure of water-column and benthic biota to spilled oil. Dispersant application thus represents a conscious decision to increase the hydrocarbon load (resulting from a spill) on one component of the ecosystem (e.g., the water column) while reducing the load on another (e.g., coastal wetland). Decisions to use dispersants, therefore, involve trade-offs between decreasing the risk to water surface and shoreline habitats while increasing the potential risk to organisms in the water column and on the seafloor. This trade-off reflects the complex interplay of many variables, including the type of oil spilled, the volume of the spill, sea state and weather, water depth, degree of turbulence (thus mixing and dilution of the oil), and relative abundance and life stages of resident organisms.

Each spill is a unique event that unfolds over a variety of time scales. Properties of petroleum hydrocarbons immediately start to change when