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REMOTE SENSING OF COASTAL POLLUTANTS

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The mounting interest in extracting oil and other resources from the continental shelf and continuing use of shelf waters for waste disposal is creating a need for cost-effective, synoptic means of determining currents and monitoring pollutants in this area. The movement and dispersion of natural or man-made suspended matter, such as sediment or ocean wastes, can be observed synoptically over large coastal areas by satellites such as ERTS (LANDSAT). However, most satellites cannot provide time-lapse photography of short-term circulation pattern since their orbits are not earth-synchronous. Therefore, an accurate measure of the magnitude of the water mass movement cannot be obtained. Moreover, remote sensors cannot penetrate more than the upper few feet of turbid coastal waters. As a result, little subsurface data can be obtained from the satellite.

Both limitations have been overcome by combining satellite remote sensors with remotely tracked current drogues to devise a satellite-aircraft-drogue system for monitoring the movement of coastal currents and pollutants over large areas at various depths, and under severe environmental conditions. Tests conducted on the continental shelf and in Delaware Bay indicate that the system provides a cost-effective means of studying current circulation, oil slick movement and ocean waste dispersion under a wide range of environmental conditions.