

## **Operational Forecasting of Water Clarity**

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We are developing a three-dimensional optical forecasting capability for the littoral ocean. This capability addresses the problem of the high spatial and temporal variability of water clarity that has been observed near the coast, where waves have an important influence on the resuspension of bottom sediments. This study uses the Littoral Sedimentation and Optics Model (LSOM) to calculate suspended sediment profiles, which are used to compute optical scattering coefficients. A diver visibility metric is then computed from the scattering coefficients.

This method has been developed for an oceanographic and optical field study that took place at Oceanside, California during October 1995. A comparison of the predicted scattering coefficients to a big-optical model suggests that LSOM is capturing the bottom sediment contribution to the optical field. We have subsequently performed operational testing of a forecasting capability for the diver visibility metric on the California coast in support of the Kernal Blitz 2001 exercise. Daily products were produced for a number of operational areas. The model predicted that water clarity would vary tremendously during a typical coastal operation. This result has important consequences for diver and instrument effectiveness during littoral operations.