

RESUME



TIMOTHY W KANA, PhD, PG **Senior Coastal Scientist**

Education

PhD. Geology (Coastal Processes), University of South Carolina (USC) 1979
MS. Geology (Coastal Geology), USC 1976
BA. Natural Sciences (Geological Oceanography), The Johns Hopkins University 1971

Experience Highlights

Dr. Kana is founder and president of Coastal Science & Engineering (CSE) (1984–present) and Adjunct Professor of Geology at the University of South Carolina (1981–present). Prior to 1984, he was a founder and principal in the firm of Research Planning Institute Inc. Kana is an internationally recognized expert in coastal and estuarine processes, and has written over 250 publications and technical reports. His contributions to the coastal engineering literature include reports on estuarine sedimentation and harbor shoaling, flocculation and agglomeration of clays, nontidal circulation and turbidity maxima in estuaries, sediment partitioning among marshes, beaches and tidal channels, potential impacts of sea-level rise on coastal wetlands, preparation of sediment budgets, and beach nourishment design.

Kana served as staff oceanographer for four years at Chesapeake Bay Institute (The John Hopkins University), where he managed projects involving current measurements and sampling of suspended sediments throughout Chesapeake Bay for purposes of calibrating the USACE physical model, measurements of sediment loads and shoaling during extreme storms, analyses of paleochannels and shoreline erosion, and laboratory studies of biologic processes affecting sediment flocculation and settling.

Coastal Erosion Studies – Technical work by Kana includes development of a methodology for objective delineation of present shorelines and setback lines along the South Carolina coast. Prototype application of the methodology was implemented by Myrtle Beach (1984) and incorporated in local zoning ordinances. In 1988, the methodology was incorporated into the state's Beach Management Act and used to establish development setback lines throughout the coast. The methodology is the first in the United States to provide for quantitative placement of setback lines based on the volumetric condition of the beach.

Kana has been principal investigator for contracts from the US Army Corps of Engineers for a number of coastal engineering studies, including Buffalo District (inventory and analysis of 200 shore-protection structures, Lake Ontario), New York District (sediment

budget, Fire Island Inlet to Montauk Point), Charleston District (sand search, Horry County, SC; and ICWW erosion), and CERC (sediment transport at Duck, NC; and performance evaluation of three SC beach nourishment projects).

Beach Nourishment — Dr. Kana has served as project director or technical advisor on more than 30 beach restoration projects totaling nearly 22 million cubic yards. His work emphasizes soft engineering solutions to erosion along the oceanfront. Among the innovative projects Kana has directed was an inlet relocation at Seabrook Island (SC) which resulted in long-term restoration of two miles of eroded beach.

Major nourishment projects Kana directed in North and South Carolina and New York include:

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|---------------------------|--------------------------|
| • Myrtle Beach | 1.3 million cubic yards |
| • Hunting Island | 0.75 million cubic yards |
| • Bogue Banks | 4.5 million cubic yards |
| • Seabrook Island | 0.6 million cubic yards |
| • Smith Point County Park | 0.4 million cubic yards |

Sea-Level Rise Studies — Pioneering work by Dr. Kana includes two of the earliest case studies of the potential impacts of sea-level rise on coastal wetlands for the U.S. Environmental Protection Agency, which quantified the controlling physical conditions and processes for tidal wetlands evolution.

International Experience

Dr. Kana has served on design and environmental impact assessment teams for numerous projects in the Caribbean, West Africa, Kuwait and other Middle East countries. From 1977 to 1989, he served as coastal processes and environmental monitoring consultant on the 20-km Kuwait Waterfront (KWF) project. Work included establishing a beach erosion monitoring program, periodic field measurements over many years, and assistance to the project engineers on Phases I–V. Kana was senior scientist for a Kuwait Foundation for the Advancement of Science (KFAS) study of environmental and water-quality impacts of the KWF (1984–1986).

Expert Testimony (1982-present)

Qualified and admitted in the following areas:

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| • Marine geology | • Coastal processes |
| • Estuarine processes | • Beach erosion |

Professional Affiliations

Board of Directors – American Shore & Beach Preservation Association

Member – American Geophysical Union

Affiliate Member – American Society of Civil Engineers

Registered Professional Geologist (NC and SC)

Certified PADI Scuba Instructor