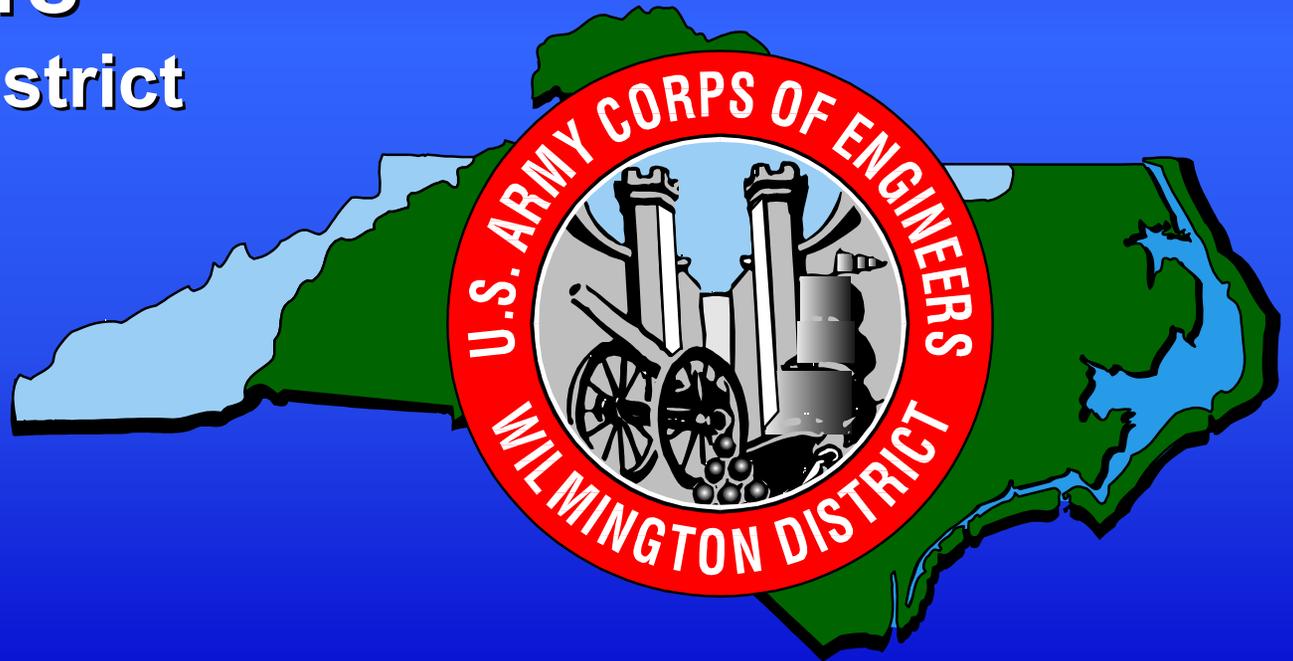
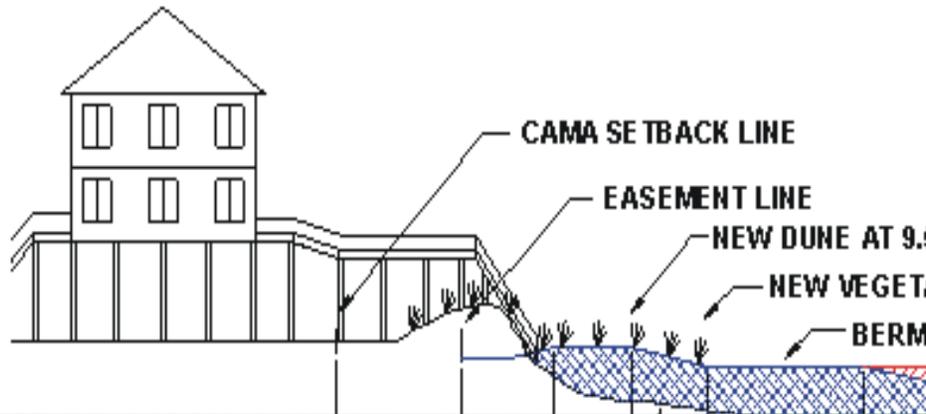


**U.S. Army Corps  
of Engineers  
Wilmington District**





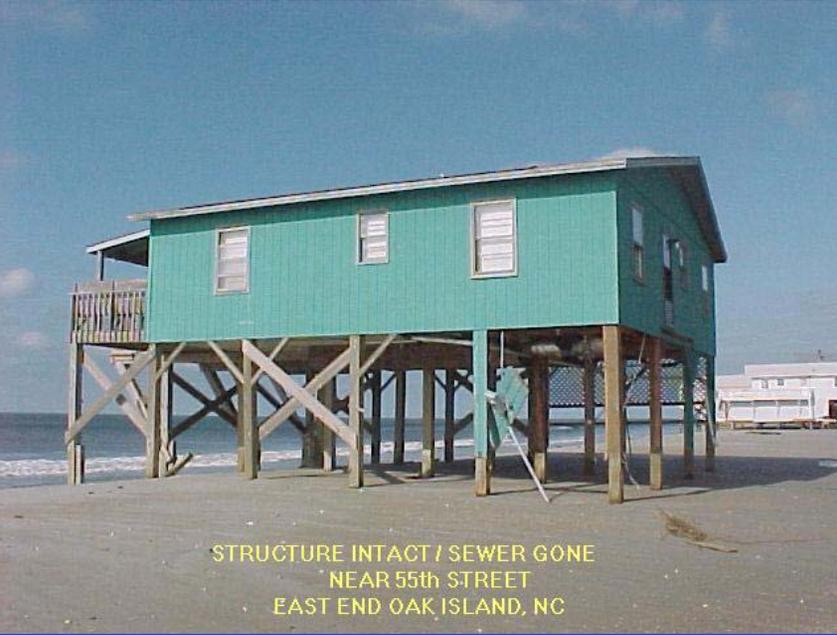
**GRANDUC**

*Generalized Risk AND Uncertainty Coastal*



VERSION 1.1  
Developmental Model  
June 1997

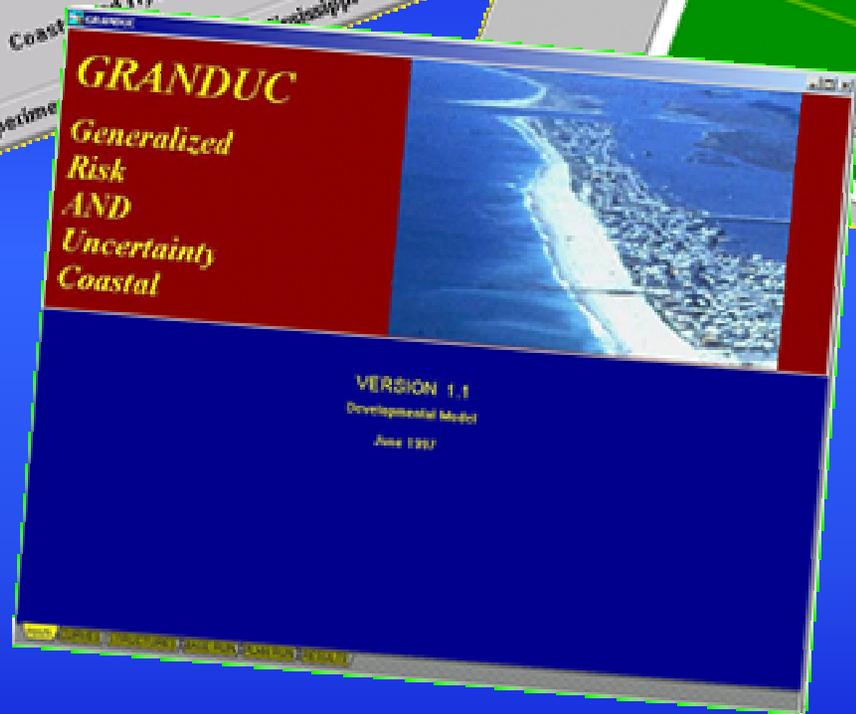
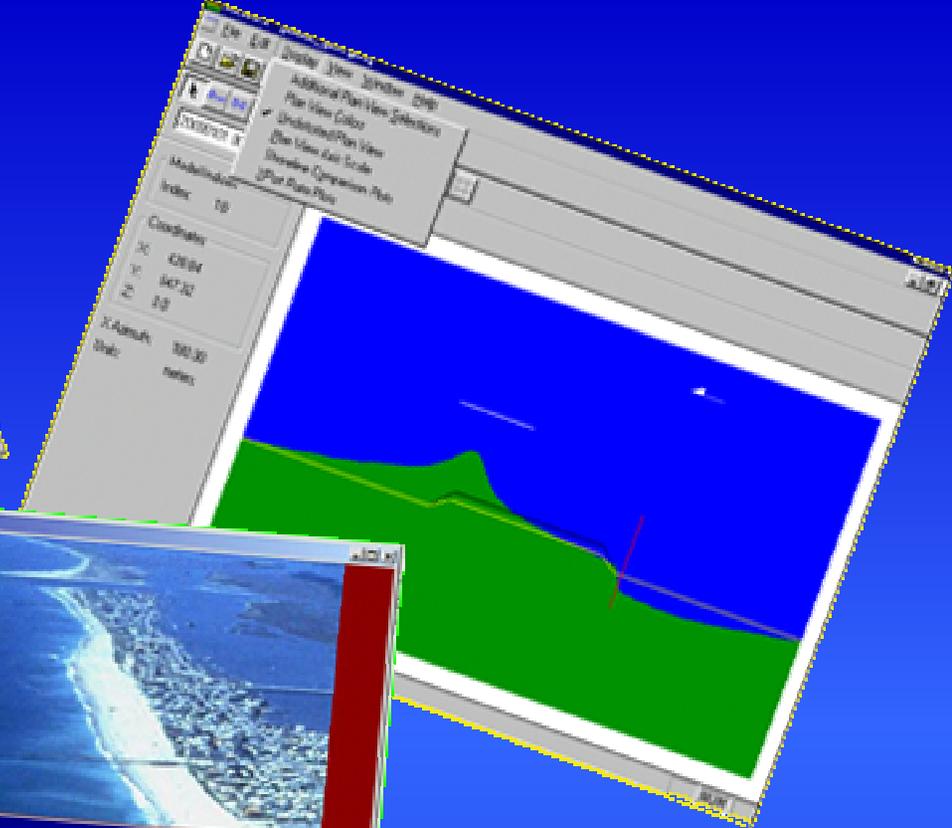
MAIN | CURVES | STRUCTURES | BASE RUN | PLAN RUN | RESULTS



DESIGN INITIAL CONSTRUCTION MEAN SEA LEVEL LINE

ADVANCED MAINTENANCE OVERFILL (CONSTRUCTION BERM)

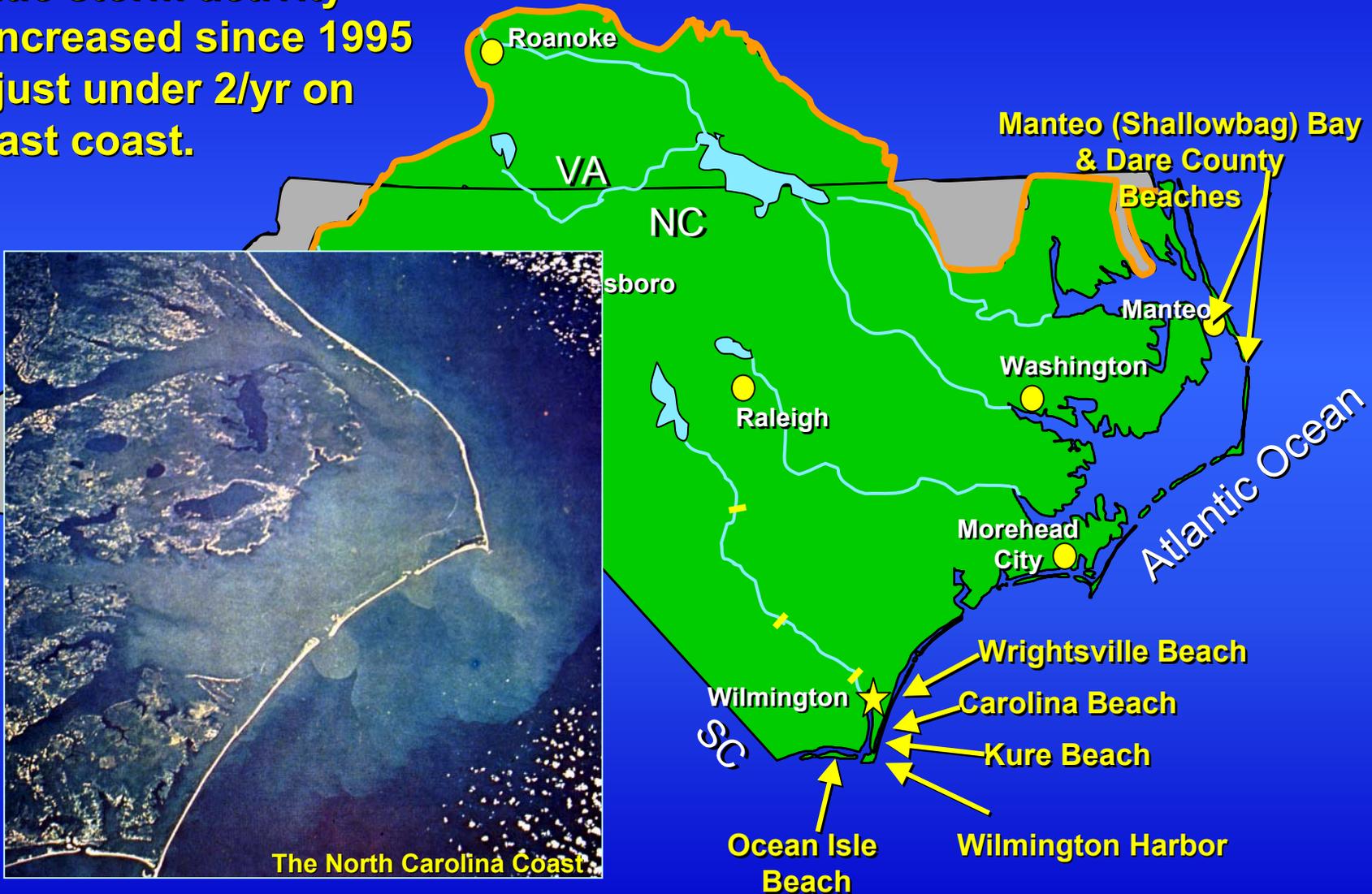
**The required risk and uncertainty analysis, the life-cycle approach, the changes in coastal construction, and increasing coastal regulation have complicated the analysis of beach projects.**



**Funds for the development of tools to analyze Beach Projects have lagged the increase complexity of the analysis.**

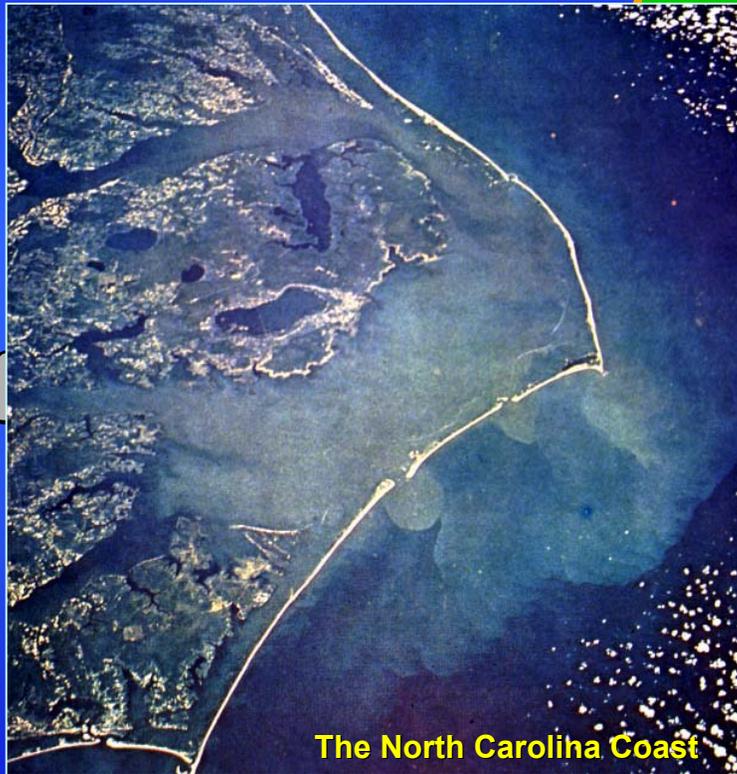
# Authorized Coastal Projects

Atlantic storm activity has increased since 1995 with just under 2/yr on the east coast.

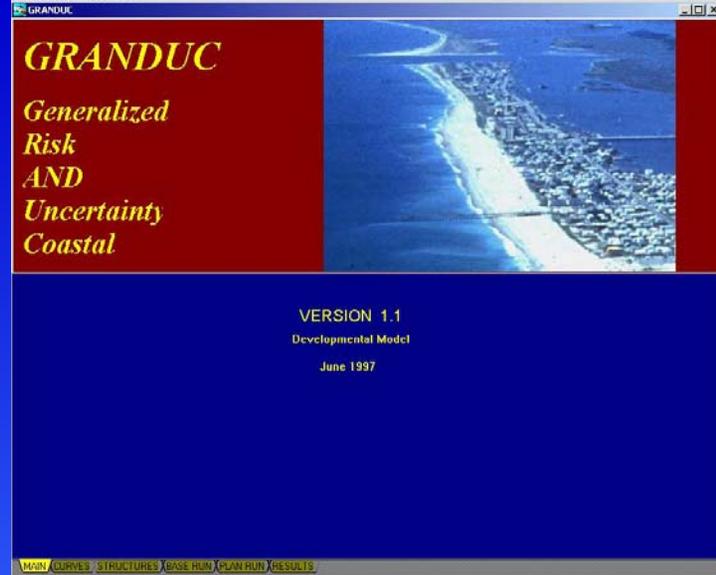


# Coastal Studies Underway

One quarter of the US population lives in Atlantic coastal counties.



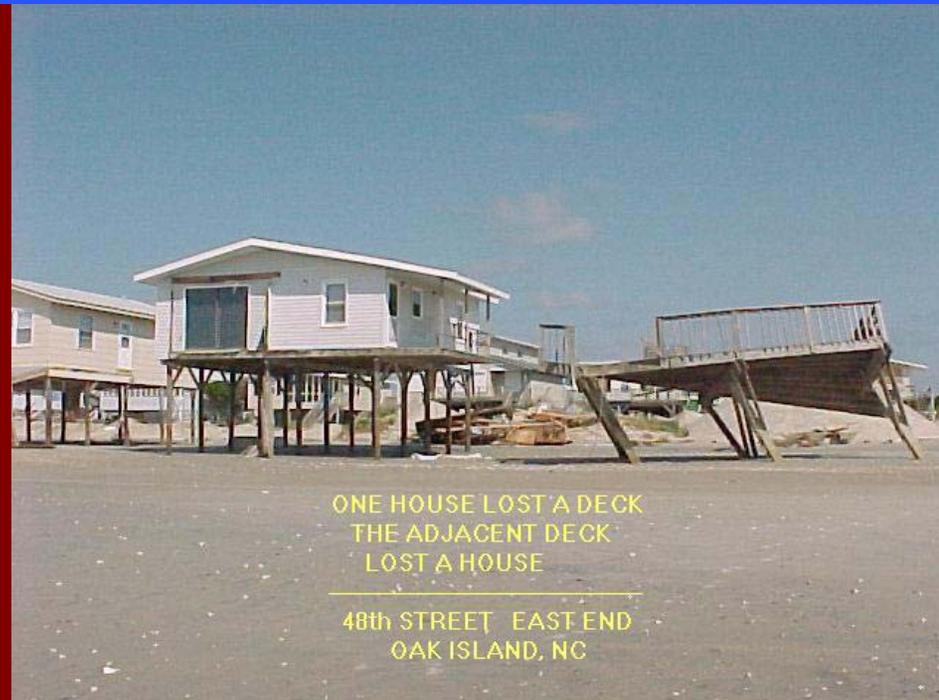
# Districts have had to devise their own tools for the analysis of beach projects



Benefit Cost Ratio



The mode = 1.50      The size of the intervals = 0.2      Max value 8.92  
 The average = 3.09      The number of pts = 7000      Min value 0.67  
 The standard deviation = 1.59



UNCERTAINTY -> THE RANGE OF ANSWERS



**Determining erosion damage curves was easy when houses were on slabs or shallow piles.**



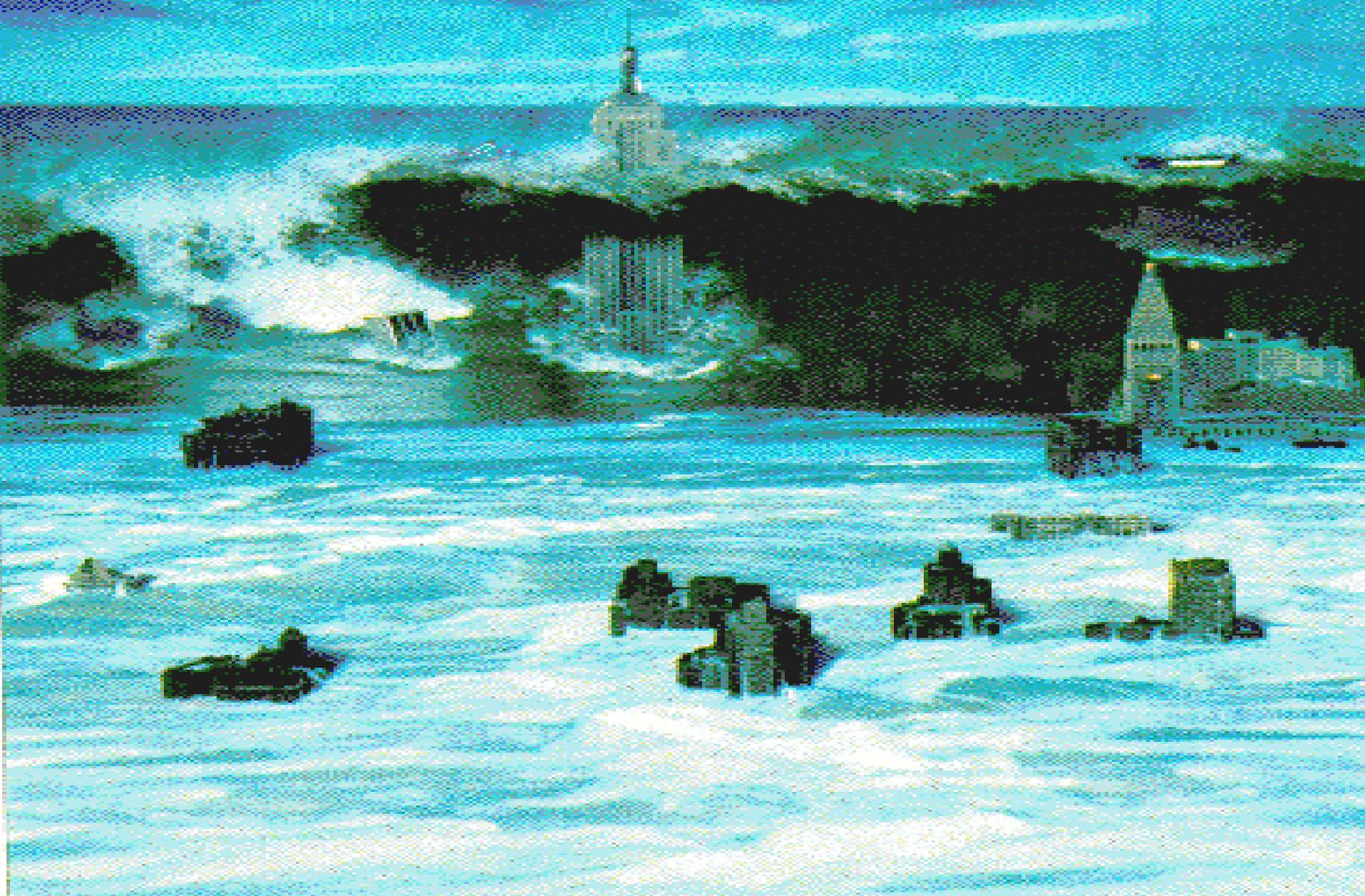


**Newer structures on deep piles require new curves with perhaps a different erosion damage indicator.**

# EROSION DAMAGE RESPONSE



# WAVE IMPACT







**Districts devising their own tools for the analysis of beach projects increases the possibility of inconsistent project evaluations.**



**Communities in different regions of the country may require different types of analysis, however, a specific community should receive the same analysis regardless of which District performs the evaluation.**

# REGIONAL COASTAL EXPERTISE TEAM

