expand however, as sediment becomes trapped by intertidal vegetation. Knowledge of nearshore topography and predictions of tidal range are essential to predictions of aerial extent, but so too is an understanding of the level of suspended sediments to be expected and the trapping rate of sediment by subtidal and intertidal plants and microbes (Montague, 1986).

Intertidal marshes and mangroves have been highly touted as good habitat for the growth of juvenile fish and shellfish of commercial and recreational importance. In addition, exchange of materials between the marsh and the estuary is believed to control supplies of nutrients in adjacent estuarine waters. Not all marshes are equivalent in their habitat value, however, and not all exchange significant quantities of materials with surrounding waters (Montague et al. in press). Perhaps the most important factor in the accessibility of marshes to organisms, and in the exchange of materials, is the density of tidal creeks (Zale et al., 1987). The density of tidal creeks can be defined as the ratio of length of edge of tidal creeks to surface area of marsh. Knowledge of the influence of creek density on habitat utilization and material exchange may be essential to understanding the relative value of marshes that develop in response to sea level rise. Comparative studies of the effects of creek density have never been reported, however.

Empirical understanding of the kinds and extent of ecosystems that may result from sea level rise can be enhanced considerably by three areas of study: first, by paleoecological analysis of cores from various coastal ecosystems (to assess response to past sea level rise); second, by analysis of ecological zonation along gradients of salinity and elevation, which should reflect kinds of ecosystems to be expected as salinity encroaches and water becomes deeper (Kurz and Wagner, 1957); and third, by greater knowledge of the variation of environmental conditions under which each major type of system can now exist. Detailed physiometric studies of coastal ecosystems are limited to a few areas, usually near marine research laboratories. Results are often extrapolated to other sites. A given set of predicted environmental conditions, however, may not match those of these few study sites. Each type of coastal system may exist in a much broader range of environments than is now documented, and gradual changes probably occur between system types. Greater regional knowledge of the variety of ecosystem types, and of the variety of environments that support the same ecosystem, will enhance the resolution of empirical ecological predictions.