mental changes (e.g., rising water level, encroaching salinity, increased tidal range and wave energy). Estimates of functions and parameter values will be based on the best available information, but some guesswork is anticipated. Uncertainty in ecological generalizations can be explored by a sensitivity analysis of the model. Needed information can be ranked according to a combination of the uncertainty involved in an estimate and the sensitivity of the model to changes in the estimate. Thus, not only can the most important information needs be identified, but also the consequences of a lack of this knowledge can be demonstrated with the model (Montague et al., 1982).

Although literature synthesis and exploratory models will facilitate the identification of specific research needs, the most relevant research will undoubtedly include several general areas. The time required for full development of subtidal, intertidal, and very nearshore supratidal ecosystems should be established with greater certainty. Under the most rapid sea level rise scenarios, conditions may not remain constant long enough for full development of an ecosystem. If so, the production of fish and shellfish and the stability of shorelines may decline.

Knowledge of the major regulators of the production of principal animals and plants is essential for coupling predictions of ecological changes to predictions of physical changes. Physiological factors that determine the type and productivities of organisms in the coastal zone include: light (turbidity), temperature, nutrients (including CO_2), salinity, water level, and biochemical oxygen demand (BOD). All of these will be influenced by sea level rise, global warming, and increased levels of atmospheric CO_2.

Physical uprooting and erosion of present ecosystems should be a major agent of ecological change. Predictions are needed both for shores and for tidal creeks. Knowledge of the resistance to erosion of these systems is also required.

The aerial extent of the intertidal zone and of sufficiently well-lit subtidal zone are of direct importance to the production of plants that provide food and cover to aquatic and nearshore animals. If coastal topography is steeper just inland from the present shoreline, then the aerial extent of the intertidal zone should be greatly reduced as sea level rises into the steeper areas. If turbidity increases, the aerial extent of well-lit subtidal zone will likewise be reduced. Both types of area may subsequently