Table 1. Areas in Which Geologic Map Information Contributes to Ecosystem Stewardship

Science Issues

1. Understanding the direct relation between geologic framework and biologic resources, such as localization of biotic communities
2. Understanding the direct relation between geologic framework and physical processes, such as direction and rate of groundwater flow
3. Understanding the direct relation among protective islands, open tidal passes, and sources and effects of bay waters on reef vitality
4. Understanding the variety of relations among localized physical environments and biological communities
5. Understanding the relation between dominant organisms and dominant sediment components and how changes in dominant sediment components indicate changes in the biotic community
6. Integrating scientific knowledge with resource-stewardship practices to attain sustainable archeological, ecologic, and socioeconomic (tourism, commercial fisheries) systems
7. Improving capabilities for restoration and preservation of each ecosystem component
8. Predicting variability and evaluating effects of coastal processes and ecosystem response to natural and anthropogenic influences
9. Educating the visiting public with accurate scientific knowledge of:
   - how and why the many varieties of reef-tract resources exist,
   - how and why each is an integral part of the ecosystem,
   - how and why each can be damaged or destroyed, and
   - how ecosystems are likely to respond to changing conditions
10. Assessing potential impacts of treasure-hunting activities
11. Informing politicians, the media, and the public visually and descriptively about locations and types of various habitats and environments prior to on-site visits

Ecosystem Issues

1. Mitigation of physical damages due to boat anchors, divers, or ship groundings and choice of the best and most effective type of restoration—by transplanting corals directly onto elevated bare rock or onto prefabricated cement substrates placed in sandy areas
2. Mitigation of sewage-disposal practices—by changing cesspools and shallow injection wells that empty into porous rock to wastewater-treatment plants and by requiring holding tanks on boats
3. Mitigation of Everglades drainage—by removing levees and canals to restore natural water flow
4. Mitigation of runoff pollution—by reducing use of fertilizers and chemicals in inland farmlands
5. Siting and choice of equipment for installing fixed navigational structures and lighthouses (i.e., in barren sand holes or on bare bedrock)
6. Siting of mooring-buoy anchorages (i.e., in barren sand holes surrounded by live-rock habitats)
7. Siting and choice of equipment for maintaining dredged channels and digging trenches for stormwater drainage pipes (i.e., sand removal with minimal siltation and turbidity)
8. Siting of areas for transplanting corals and sea grasses, taking into consideration where sediment is thick or thin, sand or mud, or where the porous limestone is coated with caprock (i.e., thin sand or bare rock allow potentially deleterious groundwaters to reach surface waters and reefs; areas of thick sand or mud or caprock form impervious aquicludes)