Cynthia A. Moncreiff, Ph.D. is an assistant professor in the Department of Coastal Sciences at The University of Southern Mississippi's Gulf Coast Research Laboratory, where she leads a research group that is focused on marine and estuarine botany. She currently has two doctoral level graduate students working towards degrees in marine science and coastal sciences, and two grant-supported research associates. Dr. Moncreiff's research interests include botanical aspects of estuarine ecology, including marine and estuarine food webs, harmful algal blooms, seagrasses, and the taxonomy and identification of algae and vascular wetland plants. She completed her doctorate in biology at Mississippi State University in 1993. The subject of her dissertation research was the primary productivity and dynamics of food webs in seagrasses. Her master's degree was obtained in 1983 in the field of Marine Science from Louisiana State University, with a research project dealing with the primary productivity of algal mats. Dr. Moncreiff has more than 20 years of experience in research in marine, estuarine, and freshwater environments, focused on the algal components of these aquatic habitats and their associated vascular plant components. Her research projects in progress include propagation of local salt marsh plants for habitat restoration and mitigation, a bayou restoration and conservation project, and two projects focused on the monitoring and examination of toxic algal blooms (red tides) in coastal Mississippi waters. Other ongoing projects include providing assistance with mapping of seagrasses in coastal Mississippi waters, and documentation of seagrass distributions and loss. Dr. Moncreiff has four extramurally-funded botany-related research projects in progress as principal or co-principal investigator; these projects total more than $500,000. She has published a number of articles in refereed journals on topics related to coastal vascular marine and estuarine vegetation, their associated epiphytes, and the organisms that make use of these types of plant material as a source of nutrition. In addition, Dr. Moncreiff is a co-author on the Gulf of Mexico seagrasses chapter in the newly published "World Atlas of Seagrasses" (University of California Press, 2003).

Impacts of Coastal Structures on Seagrasses. Moncreiff, C.A., The University of Southern Mississippi, Department of Coastal Sciences, Gulf Coast Research Laboratory, Ocean Springs, MS, USA, Cynthia.Moncreiff@usm.edu

Seagrasses can be dramatically affected by anthropogenic activities in the coastal marine environment. These activities include the construction and presence of coastal structures, such as docks, piers, bulkheads, bridges, sea walls, and breakwaters; many of these structures center on recreational use of seagrass habitat. These uses may directly or indirectly impact seagrasses, and tend to result in seagrass loss, either due to physical destruction of the seagrasses themselves or a decline in water quality that may accompany the construction or use of coastal structures. Extenuating factors often include physical disturbances such as boat groundings, propeller wash, and propeller scarring. The net result is often physical loss of habitat and decreased light availability coupled with declining water quality. These are the most visible impacts of coastal development which directly affect seagrass communities.

Extant seagrass populations off of the coast of the continental United States consist primarily of *Zostera marina* (eelgrass) off of the east coast (Thayer et al. 1984), *Zostera marina, Zostera japonica* (dwarf eelgrass), and *Phyllospadix* species (surfgrass) off of the west coast (Phillips 1984; Emmett et al. 2000), and *Halodule wrightii* (shoal grass), *Halophila engelmannii* (star grass), *Ruppia maritima* (widgeon grass), *Syringodium filiforme* (manatee grass), and *Thalassia testudinum* (turtle grass) in the Gulf of Mexico (Onuf et al. 2003). Although not true grasses, all of these species of submerged aquatic vegetation are flowering vascular plants, and require a minimum level of light for survival and reproduction.

Reduced distributions and disappearances of seagrasses in the coastal United States have been well documented (Kemp et al. 1983; Orth & Moore 1983; Robblee et al. 1991; Thayer et al. 1994). Natural causes of seagrass decline such as disease, storm events, salinity fluctuations, and hypoxic events coupled with declining water quality caused by anthropogenic eutrophication currently threaten the health of many seagrass-dependent systems (Montague & Ley 1993; Durako & Kuss 1994; Olesen & Sand-Jensen 1994; Zieman et al. 1994; Koch and Beer 1996). Areas of seagrass habitat loss coincide with areas where rapid coastal erosion and massive long-term movement of sand has been well-documented (Otvos 1981, Oivanki 1994). However, the movement of sand in to areas can lead to seagrasses becoming established if a source of plant material exists (Koch 2003).

Loss of vegetated areas correspond with potential loss in water clarity over time due either to: (1) anthropogenic influences, (2) cyclic shifts in precipitation patterns which would affect both salinity and turbidity, or (3) a combination of these factors. The effects of coastal structures are among the less well documented of anthropogenic influences, and are primarily described in the "gray literature" in technical reports or summaries. Impacts of docks have been best documented and studied to date (Loflin 1995, Burdick & Short 1999; Shafer 1999). Dock height and width, combined with local water quality, affect the amount of sunlight reaching seagrasses, and thus their survival, growth, and reproduction. Each seagrass species has its own set of light requirements, and so specific criteria need to be defined within each type of water body to allow responsible use of coastal areas and seagrass survival.

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