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A 3-stage pollution identification system with an example of final stage decimation

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St. Lucie, the southernmost inlet of the Indian River Lagoon, is affected by a variety of natural and artificial stresses including dumping from Lake Okeechobee, the second-largest freshwater lake in the U.S.A, through a system of canals. Just as pollutants, spills and organic enrichment are obvious sublethal effects of estuarine health, so too is the disappearance of organisms constituting essential links in the food chain. A baseline study established foraminiferal density, species richness, evenness and community structure in 1975/1976. Thirty years later in 2005, the same area again was sampled. In 1975/1976 the mean density was 280 per 20 ml of sediment. In 2005, we observed a mean of 46 per 20 ml, a decline of 83%. In 1975/1976, we observed 62 species while in 2005 we found only 13, a decline of 79%. The most abundant species, *Ammonia tepida*, constituted 42% of the fauna in 1975/1976; in 2005 it had risen to 76%, a dramatic increase in dominance. Based upon our newly-developed enrichment evaluation system for ecosystem decline over time, we find that the St. Lucie area is nearing, if not at the beginning of Stage 3 local extinction.