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Flood and cyclone related loss, and partial recovery, of more than 1000 km^2 of seagrass in Hervey Bay, Queensland, Australia

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Abstract

Approximately 1000 km^2 of seagrass was lost from Hervey Bay after two major floods and a cyclone within a 3 week period in 1992. This represents 24% of the known area of seagrass along the Queensland east coast, which spans 17 degrees of latitude. Anecdotal evidence suggests that such a loss is unprecedented in the past 100 years. The seagrasses in deep water (at least 10 m depth) apparently died as a result of light deprivation caused by a persistent plume of turbid water that resulted from the floods and the resuspension of sediments caused by the cyclonic seas. Seagrasses in shallow water (less than 10 m depth) were uprooted by the heavy seas. Ten months after these events, virtually no recovery was detected. Nearly 2 years after the floods there was substantial recovery, apparently from seed germination, in deep water areas. There was virtually no recovery in shallow water areas (less than 10 m). Sediment disturbance associated with the cyclone may have deeply buried the seeds in shallow areas, or they may have died after being abraded by the churning sediment. The recovering sites in deep water were dominated by *Halophila decipiens* Ostenfeld, although a few sites had returned to their pre-disturbance state of a high percentage cover of tall *Halophila spinulosa* (R. Brown) Ascherson with a sparse understorey of *Halophila ovalis* (R. Brown) Hooker f. Poor catchment management and intensive penaeid shrimp trawling may have exacerbated the effects of the floods and cyclone.

Keywords: Seagrass; Die-off; Recovery; Cyclone; Flood

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