ELSEVIER

Journal of Experimental Marine Biology and Ecology, 235 (1999) 183–200

JOURNAL OF EXPERIMENTAL MARINE BIOLOGY AND ECOLOGY

Recovery of experimentally created gaps within a tropical *Zostera capricorni* (Aschers.) seagrass meadow, Queensland Australia

Michael A. Rasheed[a,b,*]

[a]*Northern Fisheries Centre, Queensland Department of Primary Industries, P.O. Box 5396, Cairns, Qld. 4870, Australia*

[b]*Department of Tropical Environment Studies and Geography, James Cook University, Townsville, Qld. 4811, Australia*

Received 27 February 1998; received in revised form 3 August 1998; accepted 17 August 1998

Abstract

The recovery of experimentally cleared plots in a meadow dominated by *Zostera capricorni* was monitored monthly by measurements of leaf shoot density and estimates of above-ground biomass from September 1995 to September 1996. The rate of recovery, relative importance of sexual and asexual reproduction and the role of the seed bank on recovery were examined by manipulating the supply of sexual and asexual propagules. Cleared plots were mostly recolonised by *Zostera capricorni*. Recolonisation occurred principally by asexual growth from surrounding rhizomes. There was no significant recovery by sexual means, although flowering and fruiting were observed during the study period from July through to December with the highest density of sexual shoots in early spring (109.7 ± 24.4 shoots m^{-2}). Seeds stored in sediments played no role in recovery. Above-ground biomass and shoot density in cleared plots where asexual regrowth was allowed recovered to the level of the uncleared controls after 12 months. Control (uncleared) plots showed distinct seasonality in above-ground biomass, peaking in spring (71.2 ± 3.4 g DW m^{-2}), but not in shoot density, indicating that shoots became smaller rather than less numerous in winter. The rate of asexual recovery slowed in autumn corresponding to the period of biomass decline in the control plots but rapidly increased in late winter and spring.

Keywords: Monitoring; Recovery; Regrowth; Reproduction; Seagrass; Succession; *Zostera capricorni*

*Correspondence address: Northern Fisheries Centre, Queensland Department of Primary Industries, P.O. Box 5396, Cairns, Qld. 4870, Australia. Tel.: +61-7-40350113; fax: +61-7-40351401.

0022-0981/99/$ – see front matter
PII: S0022-0981(98)00158-0