

Measuring the dynamics and thresholds of tropical deepwater seagrasses

Michael A. Rasheed^{1,2}, Cath McCormack¹, Katie Chartrand^{1,2}, Peter Ralph², Ross Thomas¹, Rob Coles¹

¹ Fisheries Queensland, Department of Agriculture Fisheries & Forestry, PO Box 5396, Cairns QLD, 4870 Australia

² Plant Functional Biology and Climate Change Cluster (C3), University of Technology Sydney, PO Box 123 Broadway NSW 2007, Australia

Corresponding author: michael.rasheed@qld.gov.au

Abstract. Extensive areas of deepwater (>10m) seagrass meadows are known to occur in many tropical regions. More than 31,000 km² are found in the Great Barrier Reef Region of Queensland alone and one of the world's largest continuous seagrass meadows has been mapped recently in deeper waters of the Torres Strait. Despite their extensive distribution, little is known about the ecological roles, tolerances and dynamics of these deepwater communities compared with the much more commonly studied shallow seagrass meadows from the same region. Existing information suggests deepwater meadows may be highly productive but also highly dynamic between and within years. Increasingly these meadows are coming under threat from anthropogenic disturbances and it is critical to develop our understanding of the drivers of change and tolerances of these meadows to effectively manage them. We present initial findings from a major research program to establish a better understanding of the drivers of seasonal and interannual dynamics in these seagrass communities, the role of seed banks and seagrass recruitment, and the environmental cues that drive the seasonal patterns of decline and recovery. The research program includes a detailed study of the light requirements of these deepwater species as well as developing a range of tools for monitoring and managing anthropogenic impacts such as dredging.

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