

## Hydrodynamic effects on grazing strength in seagrass ecosystems

Munkes Britta \*<sup>1</sup>, Paul Lavery <sup>1</sup> and Mat Vanderklift <sup>2</sup>

<sup>1</sup> Centre for Marine Ecosystems Research, ECU, 270 Dr., Joondalup WA 6027

<sup>2</sup> CSIRO Marine & Atmospheric Research, Underwood Avenue, Floreat WA 6014

b.munkes@ecu.edu.au

The loss of marine ecosystems through nutrient pollution is a worldwide problem. Among the factors influencing ecosystem susceptibility to nutrient enrichment, is the diversity and abundance of herbivores. Recent results draw a contradictory picture about the role of these grazer communities in different seagrass ecosystems. Our research examines whether other impacts, such as different hydrodynamic interactions, influences the relevance of mesograzer in ameliorating impacts resulting from nutrient pollution. To answer this question we conducted field experiments in sheltered and exposed seagrass habitats and in different seasons. Our results showed that epiphytic biomass could increase strongly with nutrient enrichment, but grazer could control growth of epiphytic algae on seagrass leaves and prevent negative eutrophication effects. Hydrodynamic conditions and seasonal effects modified the outcomes between the increase in epiphytic biomass and the control through mesograzer. During autumn we did not observe any strong effects, neither in the effect of nutrient enrichment nor in the top-down control. In contrast during summer, nutrient enrichment led to a strong increase in epiphytic biomass in treatments without grazers. At sheltered sites grazer were able to control epiphytic growth, yet not at exposed sites. Our research provides new insight into processes that modify the response of epiphytes to eutrophication and the potential grazing effects in ameliorating these effects.