STELLINGEN
(Propositions)

Behorende bij het proefschrift:

Biophysical feedbacks between seagrasses and hydrodynamics in relation to grazing, water quality and spatial heterogeneity: consequences for sediment stability and seston trapping

1 Spatial distribution of shoot density at the meadow-scale is more important in determining hydrodynamic interactions within seagrass patches than the patch-scale shoot density (this thesis).

2 Gap Aspect Ratio (GAR) value of seagrass beds determines the threshold value for intrusion of overflow into the gap. Intrusion occurs when within-gap turbulence levels are relatively low and intrusion is enhanced by increased pronation of the downstream canopy when GAR is greater than threshold value (this thesis).

3 The pressure gradient caused by flow deceleration at the patch edge of seagrass beds is the main factor affecting nutrient exchange processes (this thesis).

4 Hydrodynamic forcing is the main factor affecting bottom-water exchange of nutrients, while vegetation density (including the absence of vegetation) had little effect. Hence, porewater exchange may be equally important in seagrass meadows as previously shown for bare sediments (this thesis).

5 Spatial heterogeneity may cause flow acceleration around seagrass patches, producing local erosion (Bouma *et al.*, 2009; Van der Heide *et al.*, 2010), and can influence sediment deposition and re-suspension rates (Gacia & Duarte, 2001; Temmerman *et al.*, 2007).

6 The speed of the incident flow, the canopy height and the length of a gap are the factors that govern whether the flow within the gap comes primarily from within the upstream canopy, or from above it via flow separation and recirculation (Folkard, 2011).

7 Advective exchange between the water column and pore water also occurs within seagrass meadows; it could provide an important supply of DON to seagrass roots, which are particularly good at taking up DON (Evrard *et al*., 2005; Vonk *et al*., 2008; Van England *et al*., 2011).

8 Efficient external recycling of nutrients, with substantial input of exogenous N onto the litter and efficient uptake of N released from litter, is an important mechanism to retain N in nutrient-poor tropical seagrass meadows (Vonk & Stapel, 2008).

9 Policy makers will take better decisions only when these decisions are based on scientific evidence. In the future, integrating science and politics becomes a crucial factor as a way forward.