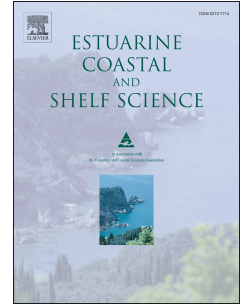


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**The relationship between inundation duration and *Spartina alterniflora* growth along the Jiangsu coast, China**

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**Abstract**

The above-ground biomass of *Spartina alterniflora* salt marsh meadows is influenced by numerous interacting factors, among them elevation, tidal range and inundation duration. Bio-geomorphological models make use of either linear or quadratic equations, but it is important to be aware that the variables are area specific and hence not generic. In order to explore the vegetation growth pattern and its influencing factors along the Jiangsu coast, China, field surveys were conducted in two typical *S. alterniflora* marshes along the coast of Dafeng and Rudong. To combine the influence of elevation and the effect of tidal range, the inundation ratio (*IR*) is introduced as a novel parameter, which is the ratio between inundation duration and the duration of the whole tidal period concerned. The relationship between above-ground biomass and *IR* can be expressed by a quadratic equation. The optimal inundation ratio for *S. alterniflora* along the Jiangsu coast ranges from 0.21~0.26, which is much lower than, for example, that for the marsh of North Inlet (0.35), South Carolina, and the Virginia Coast Reserve (0.41), USA. Tidal range plays a significant role in that a larger tidal range leads to a smaller optimal *IR*, and that the landward and seaward limits are displaced toward higher ground elevations. In macrotidal regions the submergence depth is

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