

Short-term Effects on Macroinvertebrates and Fishes of Herbiciding and Mowing *Phragmites australis*-dominated Tidal Marsh

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Abstract

Negative impacts of *Phragmites australis* expansion in tidal marshes along the Atlantic coast of North America have spurred numerous efforts to eradicate this invader. Nonetheless, *Phragmites*-dominated marshes may have considerable habitat value, and few studies have examined the short-term effects of various *Phragmites*-control treatments on resident animals. The present study addresses the impacts of herbicide (Rodeo) spraying and rotary mowing of *Phragmites* upon the use of the marsh surface by macroinvertebrates and fishes within a few months of treatment. During spring tides in July, August, and September of 2002, fishes and crustaceans leaving flooded marsh areas along the Lieutenant River, a lower Connecticut River tributary, were captured with Breder traps at 30 sites equally distributed among treated *Phragmites*, untreated *Phragmites*, and *Typha angustifolia* marsh areas. Macroinvertebrates were collected in the three types of marsh using litter bags and shallow pit traps placed along transects normal to the river bank. Treatment produced large mats of *Phragmites* litter which were gradually removed from the marsh surface, but more rapidly near the river bank than farther into the marsh interior. Macroinvertebrates sampled by both methods were as abundant in treated areas as in untreated *Phragmites*. Fish and crustacean assemblages in the different types of marsh were similar. Overall, the numbers of *Fundulus heteroclitus*, the dominant fish species, were not significantly different among treated, untreated, and *Typha* marshes. This fish foraged extensively, and its diets were similar in all three marsh areas. Herbicide treatment and mowing of *Phragmites* appeared to have no major impact upon macroinvertebrate and fish use of the marsh during the following few months.