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***Phragmites Expansion in the Great Lakes Coastal Zone: Current Trends and Future Predictions***

Rapidly expanding in Great Lakes coastal areas, the invasive strain of *Phragmites australis* (common reed) forms impenetrable stands and poses a threat to highly productive coastal wetlands and shorelines. Early attention to controlling its spread is critical. To successfully limit expansion, landscape-level management requires information on current distribution patterns and characterization of areas suitable for future colonization. Using a basin-scale, field-verified, remotely sensed *Phragmites* distribution map in a boosted regression tree analysis, we analyzed relationships between current distribution and landscape-level environmental variables to develop a habitat suitability index showing areas that may be susceptible to future invasion. Additionally, we examined the impact of the IPCC A2a 2050 climate scenario on habitat suitability based on currently observed relationships, as well as potential corridors of invasion that may develop due to lower lake levels. Results indicated that the coastal areas most vulnerable to *Phragmites* expansion had poorly drained soils, dense road networks, and minimal topographic relief. Climate predictions indicated an increase in suitable *Phragmites* habitat from 7% to 26% of the total coastal area. These results, available through an online decision support tool, will allow managers to develop control strategies that target existing populations while reducing the likelihood of expansion by building prioritized observation networks.