Does awareness of invasive freshwater plants mitigate the dispersal risk posed by lake users?

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Summary Recreational users of freshwaters (e.g. fishers, boat users etc.) are leading vectors of alien plant spread among lakes. To date no study has integrated information on the associations between awareness, mitigation and residual risk of different lake users, that might provide insights into more effective management of this introduction pathway. Using data from over one thousand face-to-face interviews of lake users across New Zealand to capture details of more than 1700 lake visits, we present the first comprehensive analysis of this pathway. Interviews captured data on the main activity, location of residence, visit frequency, other lakes visited in the last fortnight, awareness of alien freshwater species and any actions they might take to prevent their spread. The dominant lake users were water-skiers, swimmers, boat fishers, jetskiers, kayakers and lakeside fishers with other users including jetboater, sailors and hikers, less frequent. Awareness of alien plant species was high overall but with marked variation among user groups. While almost all jetboaters knew the name of at least one alien plant species, this was true for only half of all swimmers. In general, awareness was higher in users who had been directly affected by alien plants, particularly those whose equipment or boat engines were fouled causing negative associations. As a result, it was these users who were most likely to take mitigating actions such as cleaning and/or drying their equipment to prevent further spread. To derive an overall assessment of the risk posed by different users, data on distances travelled, likelihood of visiting invaded lakes, willingness to take action to prevent spread and the relative abundance of users were integrated. As a result, this study recommends that awareness raising should better target boat users, particularly water-skiers, focusing on the impacts upon their leisure activity rather than biodiversity.

Keywords Aquatic, behaviour change, pathway, propagule pressure