

Effects of Climate Change on Aquatic Invasive Species and Implications for Management and Research

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Global change stressors, including climate change and variability and land use change, and invasive species can be major drivers of ecosystem alterations. Their interaction, although not well understood, may exacerbate the impacts of climate change on ecosystems, and likewise, climate change may enable further invasions. We reviewed the scientific literature and state level aquatic invasive species (AIS) management activities and state, and analyzed regional AIS (or ANS) management plans to determine their capacity to incorporate information on changing conditions generally, and climate change specifically. Our analysis has led to five key points: (1) climate change will affect AIS throughout the invasion pathway, (2) important research gaps exist in understanding climate change effects and interactions with other stressors, (3) most AIS activities do not take climate change effects into account, potentially jeopardizing management goals, (4) although there is no mandate that directs states to consider climate change in AIS management plans, capacity exists to incorporate this information, though appropriate tools may be limited, and (5) more information is needed on impacts and adaptation options for effective management under changing climatic conditions. Research and data collection that equips managers with the tools and information necessary to conduct effective AIS management in the face of climate change will be especially pertinent.