

Contributed poster

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Title: Quantifying Aquatic Invasion Patterns through Space and Time

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Abstract: The objective of my study was to quantify the apparent spatio-temporal relationship between anthropogenic introduction pathway intensity and non-native aquatic species presence throughout the Laurentian Great Lakes. Non-native aquatic species early detection programs are based primarily within large commercial ports, but numerous other pathways of introduction beyond ballast water discharge exist and may pose significant threat for new introductions. Proxy metrics for non-native species propagule pressure were developed using geospatial land use data for three major anthropogenic introduction pathways (commercial boat traffic, recreational boat traffic, and urban activities), in order to calculate the historic probability of introduction. The relationship between pathway intensity (quantity of proxy metric) and species presence was analyzed spatially and temporally for 24 non-native species and the three pathways, at basin-wide and individual Great Lake scales. Results from this study may highlight the importance of non-ballast water pathway locations in regards to the introduction of non-native species. The development and application of this method to quantify the apparent spatial and temporal relationship between anthropogenic pathway intensity and species presence, will guide early detection and rapid response efforts to slow down and prevent the introduction of non-native aquatic species and their dispersal throughout the Laurentian Great Lakes.