

Aquatic vegetation of the St. Louis River Estuary: initial analysis of point-intercept data collected in 2010 for restoration modeling.

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A new effort to model aquatic vegetation patterns in the St. Louis River Estuary was initiated in summer of 2010 for the purpose of informing wetland restoration planning in the St. Louis River Area of Concern (AOC) at 40th Avenue West in Duluth. Aquatic vascular plants were documented using a point-intercept sampling method at two scales. At a coarse scale, we sampled a grid of 687 points evenly spaced at intervals of 200 m apart throughout the St. Louis River estuary from the Duluth/Superior harbor to the Fond du Lac dam. At a finer scale, we sampled 51 random points in the 40th Avenue West remediation site, 56 random points in five high quality reference sites near Clough Island and Spirit Lake, selected to represent conditions similar to the 40th Ave West site. In addition, we sampled two grids of 30 points spaced at intervals of 3 m apart in near-shore sites of two reference areas. At each sample point we recorded plant species present in a 1m² area, as well as water depth, water clarity (Secchi depth), and up to three dominant substrate textures. Aquatic vegetation patterns are being correlated with wind fetch, water depth and clarity, and sediment data. The finer scale analysis of the five reference sites and the 40th Ave West remediation area revealed strong correlations between wind fetch and vegetation composition, with 10 plant species identified as probable indicators of low energy/protected bay conditions. Initial results of the coarse scale vegetation analysis will be presented.