



Making Room for Wetlands – Design and Implementation of Dyke Managed Realignment for Climate Change Adaptation in the Bay of Fundy, Canada

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Globally, the practice of re-introducing, where feasible, tidal flow to former agricultural dykelands and the restoration of tidal wetland habitat, has been identified as a viable adaptation method to current and future hazards associated with climate change. While previous efforts to restore coastal wetlands in Atlantic Canada focused primarily on the restoration of resilient and self-sufficient habitats, the increasingly tangible impacts of climate change combined with changing economic landscapes, regulations, and land use practices have shifted and broadened the objectives of these projects. With limited resources available, guidance is required to determine where and how dykes should be re-aligned to optimize ecosystem services, maximize adaptation benefits, minimize economic costs and maintain fertile agricultural land and social, cultural and historic activities. The ongoing collection of monitoring data (including vegetation, geospatial, hydrology, soils and sediments) at restoration projects throughout the Bay over the past decade have been instrumental in informing re-alignment design. However as project complexity has increased new data have been incorporated, such as archaeology, landowner consultation, and engineering considerations. Design approaches and elements at three sites (Onslow-North River, Converse, and Belcher St. Marshes) will be explored, tying together common threads from projects which vary in scale and complexity from under 6 hectares to more than 90 at varying stages of restoration. A conceptual framework for the design and implementation of managed realignment projects in agriculture dykelands will be presented.