

Markus, Elisabeth (2003). "Vegetation Patterns Along Ditched and Natural Channels on Two Maine Salt Marshes". Standard Theses.

Salt marshes have long been subject to human alteration. The study of ditched salt marshes, however, is not limited to their potential for restoration. Ditches also present an opportunity to test the universality of existing paradigms of salt marsh ecology, which were developed to explain patterns observed along natural channels.

This study examined vegetation patterns along ditched and natural channels at two salt marshes located in Phippsburg, Maine. Sprague River Marsh was ditched 45 years ago, while Morse River Marsh was ditched approximately 100 years ago. Elevation and distance from channels were compared for their ability to predict vegetation zones. The vegetation and morphology of ditches was also quantified, to better understand how ditches change over time.

When vegetation is analyzed in terms of elevation, different trends become apparent than when vegetation is analyzed with distance, indicating the importance of utilizing both sampling methods. Vegetation patterns along ditches are very similar to vegetation patterns along the high marsh of natural channels. The banks of ditches, however, create a unique microenvironment that is inhabited by minor species not found elsewhere along the ditch. The changing morphology of ditches is a reminder that ditches are a dynamic part of the marsh ecosystem. Over time, ditches begin to either aggrade or enlarge, depending on water velocity and sediment retention.

These results suggest that while vegetation patterns along ditches can largely be explained by those theories developed to explain vegetation patterns along natural channels, the study of ditches does reveal certain areas that question current paradigms.