

Task 3

Project activity: Ecological connectivity metrics

Objective: To develop a metric of ecological connectivity among coastal habitats

Methods: We have assembled spatial layers of shoreline armoring and tidal marsh extent for all of Virginia. By assigning a variety of “costs” to an organisms movement through areas with armoring, we are using a cost-connectivity tool within ArcGIS to develop a connectivity metric. The tool provides the least-cost network for connecting all of the marshes within a given area. We hope to be able to use this as an input variable when explaining the variation in species abundance and diversity among marshes and living shorelines. Given that this is a very resource intensive process to run and develop, we are currently operating with a crude connectivity metric that combines the distance from armoring (further is better) and distance from marsh (further is worse) into a single value. Low values may indicate lower connectivity and high values, high connectivity. This was the method used for identifying the connectivity of sites selected for field sampling.

Progress to date: Development of the methodology is complete. We are currently developing the “cost scenarios” that will be used to feed into the cost-connectivity tool for all of Virginia. We anticipate completion by the end of 2018.