Coastal Virginia Ecological Conservation



Mapping Wetland Change in Coastal Virginia to Identify Areas Most Susceptible to Wetland Loss and Migration

Project Synopsis

The Coastal Virginia Ecological Conservation project aimed to determine the vulnerability of tidal wetlands in coastal Virginia in the face of rising sea levels. The team conducted suitability analyses to predict migration patterns and identify minimally urbanized and agricultural lands suitable for being re-naturalized to facilitate wetland migration. This project provides the partner, Wetlands Watch, with products to communicate information regarding wetlands decline through the end of the century and advocate to lawmakers for re-naturalization/urban conversion of developed land to mitigate ecosystem loss.

Objectives

Determine the feasibility of using remote sensing techniques to aid in understanding how coastal Virginia wetlands have and will migrate because of sea level rise

Methodology



- **Develop** a model that accurately calculates future intertidal wetlands accounting for sea level rise
- Map developed areas that could be easily re-naturalized to reduce barriers to future wetland migration
- **Produce** communication products that can be used to advocate change to lawmakers and educate the general public

Study Area



Steps that vary by year are indicated by asterisks (*) Final products are **bold**

Future Wetlands*

Results

Future Wetlands Extent 2100 Wetlands Extent 2030 Wetlands Extent

Migration*





Earth Observations





Landsat 7 ETM+

Landsat 8 OLI



Landsat 9 OLI-2

Team Members



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Conclusions



Possibly Open to Conversion

- It is feasible to use remote sensing techniques to predict future wetland migration.
- Our model projects that through the end of the century, rising sea levels will reduce coastal Virginia's wetland extent by nearly 80 percent.
- Converting urban areas to wetlands can help mitigate damage from sea level rise by up to 41 percent.

Project Partner WETLANDS WATCH

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