

Title: Projecting the Impacts of Climate Change and Identifying Adaptation Options at Wallops Island, Virginia.

Abstract: The barrier islands of the mid-Atlantic coast have been ranked by the USGS as extremely vulnerable to the impacts of sea level rise (SLR). Understanding how these environments responds to SLR is critical to the protection of the shallow benthic environments behind them. This project will develop management plans that incorporate impacts of Global Climate Change specifically on Chincoteague National Wildlife Refuge (CNWR) and Wallops island, Va. This area is critical to the protection of nesting sites for endangered species including Piping Plover, Loggerhead Turtles, and the many invertebrate species that form the food chain for those organisms. This study will use remote sensing data, including LIDAR data to develop a Digital Terrain Model (DTM), map the current distributions of important habitats at the CNWR, detail the likely areas of greatest impact from rising sea levels, quantify the rates of habitat change, and identify areas that may become important wetlands as the coastal systems attempt to migrate inland. This project is a collaborative effort between NASA Goddard Wallops Flight facility, Marine Science Consortium (MSC), US Fish and Wildlife Service and two Pennsylvania State System of higher Education (PASSHE) institutions of Millersville University of Pennsylvania and East Stroudsburg of Pennsylvania.

Airborne LiDAR Assessment of Wallops Island, Virginia

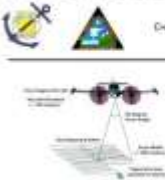


Figure 1 - Diagram of LiDAR system components

Wavelength	Power	Scan Rate	Scan Angle	Scan Width
1064 nm	1000 W	1000 Hz	±15°	±100 m
1550 nm	1000 W	1000 Hz	±15°	±100 m
2032 nm	1000 W	1000 Hz	±15°	±100 m
2790 nm	1000 W	1000 Hz	±15°	±100 m

Figure 2 - Airborne LiDAR data visualization

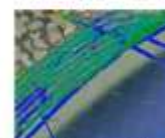


Figure 3 - LiDAR data visualization showing terrain elevation

Abstract

The collection and analysis of LiDAR data... (text continues)

Summary

This study assesses the impact of SLR on Wallops Island... (text continues)

Future Endeavors

As the data analysis process is refined... (text continues)

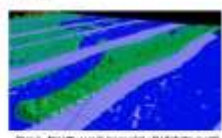


Figure 4 - Future projections of SLR impact

Acknowledgements

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References

USGS. 2002. Coastal Vulnerability Assessment... (text continues)

Appendix

Table 1: List of LiDAR data files and processing parameters.