Decision Support Tools for Managing Tidal Shoreline in Virginia

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Supported by the Virginia Institute of Marine Science, Center for Coastal Resources Management, Comprehensive Coastal Inventory Program

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Final Summary

The Comprehensive Coastal Resource Management Portals (CCRMP) are gateways to decision support tools and guidance for local governments required to implement new tidal shoreline management policy adopted by the Virginia General Assembly in 2011. The tools include Shoreline Best Management Practices for tidal shoreline erosion control, Decision Trees, and a Sea Level Rise Inundation Tool. The Shoreline Management Model (SMM) was developed at the Center for Coastal Resources Management in response to the amendments to the state code of Virginia in 2011. The SMM defines Shoreline Best Management Practices and complies with the state's preference for living shorelines as a preferred alternative for erosion control in Tidewater. Compliance with this practice is a required consideration for all Tidewater localities. In 2015, the General Assembly adopted policy that requires localities in Hampton Roads to incorporate Sea Level Rise in their comprehensive planning. The Sea Level Rise Inundation Tool projects inundation based on NOAA's most recent National Climate Assessment projections.

Modelling required to run the SMM and the Sea Level Rise Inundation Tool require, among other things, high resolution LIDAR, the Shoreline Inventory data, and the delineation of marshes found in the Tidal Marsh Inventory. Previous 309 strategies have directly funded the Shoreline Inventory but no other components.

This project funded the development of the Shoreline and Tidal Marsh Inventories for specific localities and ran the SMM for those localities. At the same time the Center for Coastal Resources Management ran the Sea Level Rise Inundation Model to complete the toolbox of resources being developed for each locality and served through the Comprehensive Coastal Resource Management Portal.

The products and deliverables associated with the Shoreline and Tidal Marsh Inventories were generated for four localities: Surry, Hanover (Shoreline Inventory only), King George counties and the city of Fredericksburg. Approximately 413 miles of shoreline was assessed and 3,140 acres of tidal marshes. Data are posted to a website which gives access to GIS data, summary

reports, summary data tables, and a map viewer (http://www.vims.edu/ccrm/research/inventory/virginia/index.php).

The SMM was run for all four localities and the content posted to the Comprehensive Coastal Resources Management Portal (http://www.vims.edu/ccrm/ccrmp/portals) for each locality. The portal for each locality includes all of the above mentioned information as well as the Sea Level Rise Inundation tool mentioned above and additional resources and guidance.

Upon completion of the modeling effort and publication of the online portal, each locality has received copies of the GIS data associated with all products on disk and a hardcopy summary report pertaining to methods and development of the Shoreline and Tidal Marsh Inventory. VIMS outreach coordinator will be contacting each locality to schedule training if desired. Copies of all materials and data have been delivered to VA CZMP.

Project Deliverables

City of Fredericksburg:
Shoreline Inventory
Tidal Marsh Inventory
Shoreline Management Model
http://www.vims.edu/ccrm/ccrmp/portals/fredericksburg/index.php

Publication: Berman, M.R., Nunez, K., Killeen, S., Rudnicky, T., Bradshaw, J., Duhring, K., Brown, K.F., Hendricks, J., Weiss, D., and Hershner, C.H. 2017. City of Fredericksburg, Virginia - Shoreline Inventory Report: Methods and Guidelines, SRAMSOE no. 458. Comprehensive Coastal Inventory Program, Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, Virginia, 23062.

Hanover County:
Shoreline Inventory
Tidal Marsh Inventory
Shoreline Management Model
http://www.vims.edu/ccrm/ccrmp/portals/hanover/index.php

Publication: Berman, M.R., Nunez, K., Killeen, S., Rudnicky, T., Bradshaw, J., Duhring, K., Brown, K.F., Hendricks, J., Weiss, D. and Hershner, C.H. 2016. HanoverCounty, Virginia - Shoreline Inventory Report: Methods and Guidelines, SRAMSOE no.459. Comprehensive Coastal Inventory Program, Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, Virginia, 23062.

Henrico County
Shoreline Inventory
Tidal Marsh Inventory
Shoreline Management Model
http://www.vims.edu/ccrm/ccrmp/portals/henrico/index.php

Publication: Berman, M.R., Nunez, K., Killeen, S., Rudnicky, T., Bradshaw, J., Duhring, K., Brown, K.F., Hendricks, J., Weiss, D., and Hershner, C.H. 2017. Henrico County, Virginia -

Shoreline Inventory Report: Methods and Guidelines, SRAMSOE no. 460. Comprehensive Coastal Inventory Program, Virginia Institute of Marine Science, College of William and Mary,Gloucester Point, Virginia, 23062.

Surry County:
Shoreline Inventory
Tidal Marsh Inventory
Shoreline Management Model
http://www.vims.edu/ccrm/ccrmp/portals/surry/index.php

Publication: Berman, M.R., Nunez, K., Killeen, S., Rudnicky, T., Bradshaw, J., Duhring, K., Brown, K.F., Hendricks, J., Stanhope, D., Weiss, D. and Hershner, C.H. 2017. Surry County, Virginia - Shoreline Inventory Report: Methods and Guidelines, SRAMSOE no.462. Comprehensive Coastal Inventory Program, Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, Virginia, 23062.