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Ecosystem Tradeoffs Associated with Tidal Marsh Sills

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Abstract: Low-profile rock revetments are commonly used in Virginia to stabilize erosion of tidal marsh shorelines or to create a tidal marsh for erosion protection where it does not naturally exist. The theory behind this practice is to enhance the natural capacity of tidal marshes to provide shoreline protection. Encroachment into riparian buffers and subtidal waters may be required to create suitable elevations for tidal marsh vegetation and to create a marsh wide enough for sustainable protection.

Other ecosystem impacts and tradeoffs associated with tidal marsh sills include temporary water quality impacts during construction, potential displacement of subtidal benthic organisms, interruption of nekton access into and out of the tidal marsh plus altered tidal exchange and sediment processes.

Case studies will be used to illustrate these principles and ecosystem tradeoffs of tidal marsh sills in Virginia. The current scientific understanding of this method and minimum design standards for effective shoreline protection will be summarized, including the occasional need to encroach into state-owned submerged lands. Site conditions will be revealed where this practice can be used effectively with the least amount of adverse impact to the tidal shoreline ecosystem.

Spaker Information: Karen Duhring has a master's degree in Coastal Management from the Florida Institute of Technology and 19 years of experience in this field working in coastal regions of Florida & Virginia. For the past 7 years, she has been a shoreline advisory scientist at the Virginia Institute of Marine Science (VIMS) in Gloucester Point, VA. She provides shoreline information and outreach education for waterfront property owners and regulatory agencies. Her expertise includes the cumulative impacts of coastal development on riparian and wetland habitats, native habitat & landscape restoration, and low impact shoreline stabilization.