EcoShorelines on Developed Coasts
Guidance and Best Practices

Definition
New Jersey’s Coastal Zone Management Rules define a living shoreline as a “shoreline management practice that addresses the loss of vegetated shorelines, beaches, and habitat in the littoral zone by providing for the protection, restoration or enhancement of these habitats” (N.J.A.C. 7:7-1.5). An urban ecoShoreline is a type of living shoreline with the key constraint of space. Urban infrastructure limits habitat development in these areas and, therefore, requires creative design principles to support project success.

Introduce Curvature & Reduce Slopes
Many urban shorelines have been straightened to benefit transportation and upland development, but shoreline curvature protects native species from strong currents. However, before introducing curvature in high current areas, models should be developed to ensure other nearby structures are not negatively impacted. Urban shorelines typically have steep banks to support navigation and maximize upland use. Terracing creates layers of vegetation to support varied habitat and dissipate wave energy in a steep space. Shelves installed along steep shoreline banks also support vertical habitat growth.

Allow Light Penetration & Use Alternative Materials
Light penetration is important for healthy marine habitats. Important photosynthesizing organisms require sunlight, and many nearshore species require light for specific behaviors. Alternative materials—such as translucent panels or others that limit shade—can be utilized to support adequate lighting. Vegetation can be added to traditional infrastructure to increase habitat value and improve aesthetics. Traditional materials such as concrete can often be modified at a minimal cost to provide ecological enhancement and improve structural performance.

Increase Surface Roughness & Water Retention
Roughening the surface of the materials used in urban ecoShorelines increases the surface area available for habitat development and supports water retention which is required for organism survival. Further, colonizing species more easily attach and grow on textured surfaces thereby increasing biodiversity.

Important Note
Including these design principles will benefit a project, but urban ecoShoreline design must also seek to preserve natural areas, be resilient and adaptable, be planned with the surrounding community, and include future monitoring plans. A well-designed ecoShoreline will withstand stressors associated with climate change, such as sea level rise. Consistent monitoring allows for improvements to be made and measured successes justify future projects.

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