Living Shorelines for the Bays

Working With Nature...Not Against It

Eric Buehl, Habitat Coordinator

It's probably safe to say that many people who live along Delaware's Inland Bays have had their own struggle with nature at one time or another and if this year's weather is any indication, staff at the Center for the Inland Bays will be fielding a record number of questions about what people can do to stop the loss of their shoreline.

Erosion is a natural process and depending upon your perspective can be viewed as a positive or negative process. Delmarva is a giant sandbar that resulted from erosion, in which the end result is sedimentation; where the land is eroded in one area and deposited in another. Soil particles (sediment) dislodged by erosion are responsible for some of the most fertile farmland, and naturally-occurring amounts of sediment can nourish wetlands and transport nutrients from one area to another.

So what do you do if you're a waterfront landowner that has an eroding shoreline?

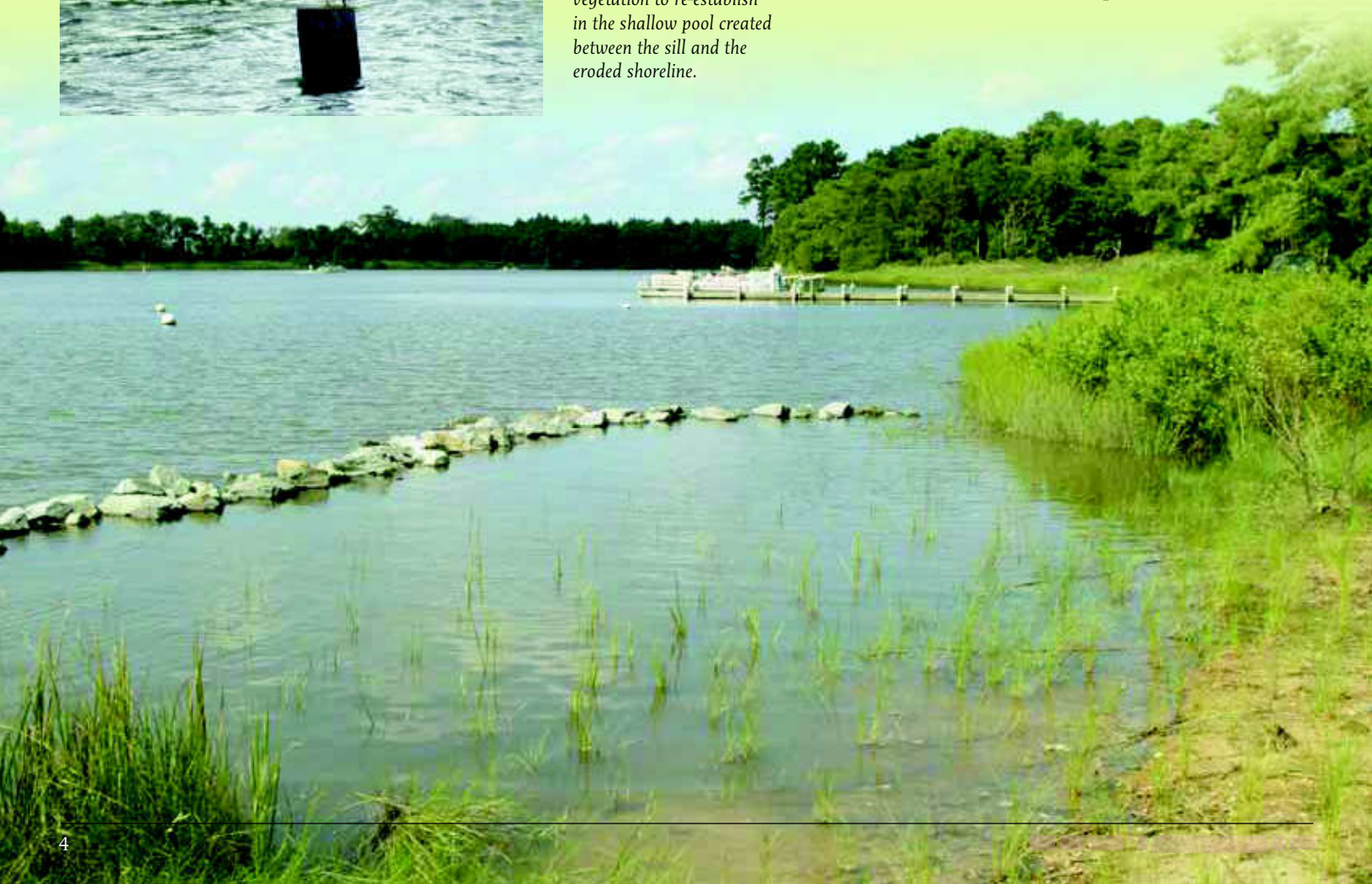
Dumping rubble along the shoreline is illegal, it doesn't stop erosion, and it negatively affects wildlife habitat.

Below: Low-profile sills made of rip-rap decrease wave energy and allow for vegetation to re-establish in the shallow pool created between the sill and the eroded shoreline.

The first step is to objectively assess the situation and figure out why the erosion is occurring. You don't have to be an engineer to start the process, just look around and ask yourself questions like: is there runoff coming from your roof, lawn, or street that is causing problems? Did you cut down or kill vegetation that protected your shoreline? Has there been an increase in boat traffic? Was this year's weather worse than past years? And so on.

Educate yourself about bay-friendly options for shoreline protection. A number of useful links are listed below. Once you start to get a handle on the situation, talk to someone who does this type of work. Look for a contractor with experience in using 'living shoreline' techniques. Look in the phone book under "marine contractors" or do an internet search for "marine contractors, Delaware." Smaller projects can be done by individuals but larger projects may involve handling stone, placing filter fabric, even grading, so before trying to tackle this, seek advice. In most cases, any work done on or near the shoreline requires a permit and contractors will know what permits are required.

Not too many years ago it was a common practice to dispose of construction debris along shorelines in an effort to stop erosion.



Leaving a buffer of native vegetation between lawns and the bay help slow runoff, buffer wave energy, and provide wildlife habitat.

The staked coir fiber logs (usually made entirely from natural coconut fibers) reduce wave energy, provide an area for plants to grow, trap sediment, and degrade after several years.

Bulkheads used to be a preferred method but have a number of negative consequences as does using large stone to completely cover the shoreline.

Now when trying to stabilize an eroding area, contractors consider factors such as fetch (amount of open water that wind has to generate waves), current, tide range, water salinity, and the height of the bank. Perhaps the easiest method to protect your shoreline is to enhance or re-establish native vegetation. The key is selecting different types of native vegetation that grow in the shallow water, the inter-tidal area, and up the bank. Keep in mind that this practice may be limited to areas that aren't subject to large waves or strong currents. In the right places though, this is very cost effective and beneficial to wildlife.

If wave energy or currents are more than what vegetation alone can handle and you're interested in a practice that will increase the protection of your shoreline but will still have that natural look and feel, consider a combination of vegetation and coir fiber logs. Eroding shoreline is protected by the staked logs until the plant roots have a chance to take hold and stabilize the area. The logs are temporary and will degrade after several years. In some cases, the logs might be used in conjunction with rip-rap (stone) when currents and waves increase. This would be the next step up in shoreline protection and these 'low-profile stone sills' are gaining in popularity and can generally accommodate the landowner's desire to protect their property and still create desirable habitat for fish and birds.

Whatever you use to stabilize your eroding shoreline, please keep a couple of things in mind. First is to give wildlife access to habitat. Second, use only native vegetation on your project. Finally, use only the minimum treatment necessary. In other words, try to blend things in with nature rather than trying to tame it.

Shoreline Protection Methods Compared

	Marsh Creation with Sill	Groin with Sand & Marsh	Coir Biolog with Sand & Marsh	Stone Revetment	Bulkhead	Do Nothing
Reduce Erosion	yes	yes	yes	yes	yes	no
Provide Habitat	yes	yes	yes	minor	no	no
Uptake Nutrients	yes	yes	yes	no	no	no
Filter Sediments	yes	yes	yes	no	no	no
Improve Water Access	yes	yes	yes	no	no	no
Dissipate Waves	yes	yes	yes	no	no	no
Impact to Receiving Waters	Positive (improves water quality - reduces nutrients and sediment loading)	Positive (limited protection for marsh)	Short Term	none	Negative (may cause near-shore erosion of bottom)	continued pollutant loading and loss of upland

Courtesy of Environmental Concern, www.wetland.org

Websites and Videos:

Scientists Struggle to Protect Shoreline
www.youtube.com/watch?v=a1C6ULC7EVk

Chesapeake Live-Living Shorelines
www.youtube.com/watch?v=MelvhKa5PvQ

Recovered Shoreline
www.youtube.com/watch?v=CEEnjZ42_F4

Designing Living Shorelines
www.masgc.org/pdf/bab/hmr/Douglass.pdf

Benefits of a Living Shoreline
www.wetland.org/restoration_livingshorelines_benefits.htm