

The Floating Gardener

A Publication Provided by The Magothy River Association

Between A Rock And A Hard Place – A Letter from the Editor

The August issue of The Floating Gardener introduced the Green Shoreline Initiative (GSI), a name coined by the principals in a joint brainstorming of the Magothy River Association (MRA) and Anne Arundel Community College's (AACC) Environmental Science Department. The term underscores this is a multi-faceted effort aimed at replacing habitat and lost native shoreline along the Chesapeake Bay and its tributaries.

This holistic approach to restoration includes the replenishment of underwater grasses (SAV's) and emergent plants, both of which have been the subject of earlier newsletters. But GSI also includes restoring areas of shoreline where the naturally occurring flora has been depleted. Replanting grasses and other native plants re-creates a natural shoreline that responds to changes in weather and tides and combats erosion. Although the moniker is new, the Green Shoreline concept isn't really new at all, but the result of several generations of research that have been evolving at AACC since the early 1980's. This month's newsletter will fill you in on this evolution - highlights will be naturally selected!

Because it's located mid-bay with respect to the Chesapeake, Anne Arundel Co. has an exceptional diversity of plant life. Couple that with the wide range of salinities in our rivers and creeks, and there's a unique opportunity for applied research covering multiple combinations and with mutual benefits for students, the county, and the environment. Research studies at the college are typically approved and funded on an annual basis so partnering with the MRA to help support the Green Shoreline Initiative means that studies can be extended over a longer period of time and will ultimately yield more meaningful information.

Not very long ago, marshes and beaches alive with native plants were the norm around the Chesapeake and did the job of buffering the shoreline – bulkheads and riprap need not apply! When the occasional storm or hurricane battered the bay and damaged those buffers, they generally recovered quite nicely, thank you, in the spring and early summer as marsh grasses and other plants repeated their annual cycle of reproduction and active growth. But as Anne Arundel County grew, so did the number of people who were attracted to life by the water. Small summer places were replaced by larger, year-round residences and property that had been previously uninhabited was now under development.

As one might expect, boating as a leisure activity was also part of the scene and soon the combined effects of development and the wake from increased boat traffic made it difficult for the marshes and beaches to replenish themselves and recover as they had been able to historically. One stretch of exposed shoreline where this was painfully obvious was located just next to the Severn River Bridge.



Upcoming Events

October 18

Magothy River Association
Annual Meeting & Members'
Picnic

Gibson Island – Noon - 2:30PM

October 21

MRA Monthly Meeting

Berrywood Community Clubhouse
7:30 PM

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In the boom following World War II, Maryland offered interest-free loans to property owners for the construction of bulkheads for 'structural shoreline preservation', which was then considered the best form of shoreline management. As a result, much of the natural shoreline along populated areas of the rivers was replaced with either bulkheads or a rocky abutment called riprap. Erosion in the area adjacent to the bridge would have typically been mitigated with one or the other, creating a hard barrier between the water and the land, but destroying vegetation and habitat in the process.

In the late 1980's, a proposed upgrade to the Severn River Bridge added two lanes to Rt. 50 and produced a lot of concrete rubble that would need to be removed from the site and transported to a landfill. Stephen Ailstock, Chairman of the Biology Department at AACC and Director of the Environmental Center, saw an opportunity and made a proposal of his own. With the cooperation of Paul Evans, a colleague of Dr. Ailstock's at AACC who happened to own the stretch of exposed property by the bridge, the Army Corp of Engineers (ACOE) was presented with a permit request to stabilize the shoreline via a non-structural solution; a 'living shoreline'. The plan called for recycling concrete removed from the bridge to form a

low partition along the shore to soften the wave action, then plant the beach with native *Spartina* grass - its robust root system discourages erosion. Now the contractor for the bridge work had only to transport the rubble a few yards away rather than remove it by barge and pay landfill fees. The permit was granted and it was a 'win-win' for all concerned. Transformation of the entire site is evident in the series of photos above.

This was also the beginning of the relationship between AACC and The Providence Center, which had the greenhouse space and a work force that could accommodate a project of this size. While the Providence Center provided the resources to move the restoration project forward, the project created opportunities for adults with developmental disabilities to develop job skills, self-esteem and tools for independence - another 'win-win'.



Time, Tides and Traces

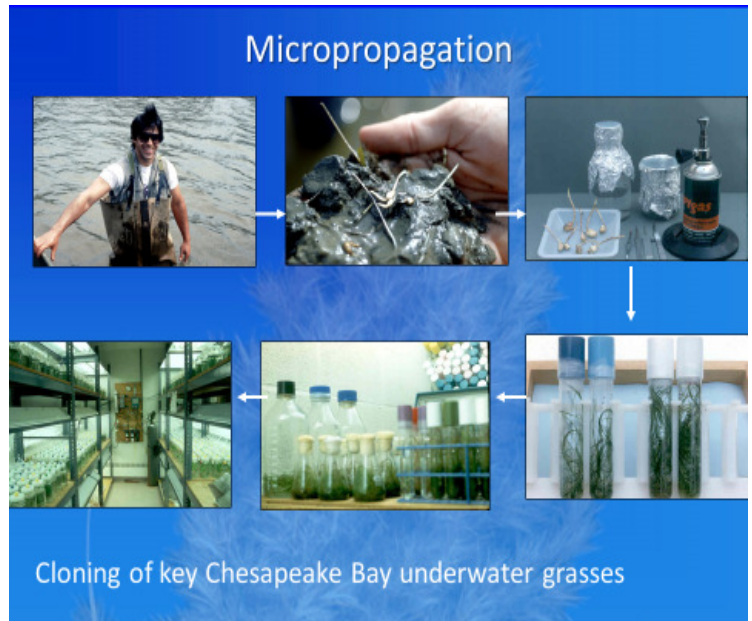
Poised on the edge of the new millennium, AACC was involved in another interesting shoreline stabilization effort in Oxford, Maryland that served the dual purpose of preserving an important archaeological site. Erosion had begun to unearth artifacts along an area of the riverbank and threatened to carry away traces of Oxford's earlier history. Further erosion was halted by strategic positioning of a low profile barrier of recycled materials and the addition of native marsh grasses to stabilize the adjoining shoreline. As a result, important pieces of local history were spared the effects of time and tide.

Plant Propagation

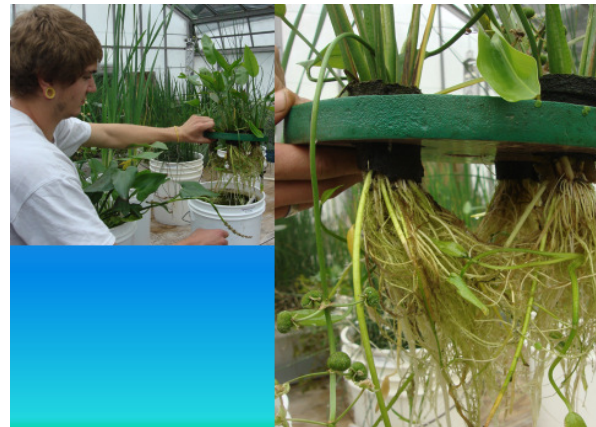
Cloning/ Micro-propagation

A source of viable plants are key for any restoration. Initially, AACC relied on cloning to produce the *Spartina alterniflora* (Cordgrass) and *Spartina patens* (Salt meadow hay) grasses that were used almost exclusively for the original shoreline plantings. The process was labor intensive and before long it was difficult to keep pace with the growing demand. Availability of plant stock presented an obstacle that limited the size and number of green shoreline projects that could be advanced by the college. There had to be a better way!

Propagation by seed would ultimately be the answer to greater quantities and efficiency so environmental science students added the role of "seed harvester" to their growing list of college experiences. Although underwater grass seeds were the first to be harvested, students now kayak to different locations in the rivers and creeks to harvest seeds from hibiscus, goldenrod, marsh aster, etc., which are used to grow the various emergent plants used in the floating gardens.



Propagation by seed collecting and cultivation



Restoration of Poplar Island

One of the most high profile environmental projects in which AACC has participated is the restoration of Poplar Island. Poplar Island has been brought back from the brink of extinction via a collaboration of the Maryland Environmental Service, The Maryland Port Administration and the U.S. Army Corp of Engineers. The restoration effort includes the creation of uplands and intertidal wetlands that offer diverse habitats for a variety of Chesapeake Bay wildlife. Even with less than 20% of the habitat completed, goals for wildlife are already being realized. Some of the region's most sensitive bird species, including common and least terns, cattle and snowy egrets, osprey, and the American black duck, have been nesting onsite annually and diamondback terrapins continue to return to their nest sites on the island as well. The restoration of Poplar Island has received local and national press, but has also gained international attention, with delegations from across the globe visiting the site each year. But you don't have to be an influential international figure to take a tour of Poplar Island! Anyone with an interest may contact Megan L. DiFatta at mdifa@menv.com or call 410-770-6503. Tours run Monday-Friday, begin at 9am and end at 12pm. Unfortunately, they are currently booked for the remainder of this season, but Megan will begin taking reservations for the 2016 tour season on December 14th.

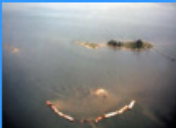
Students in the Environmental Science program at AACC have made their own contributions to the restoration of Poplar Island. They have harvested and tested seeds for both underwater grasses and wetland plants, then worked with growers at The Providence Center to cultivate the healthy plant stock that will be established in various island habitats. Students see the process through to the end by planting the underwater grasses in designated areas of Poplar Island.

AACC Student Contributions Poplar Island Restoration



Poplar Island 1892 – approx. 1,000 acres

Island history
In 1846, Poplar Island boasted more than 1,000 acres. During the early 1900's, the island supported a thriving community of about 100 inhabitants, several farms, a school, a church, a post office and a saw mill. By the 1920's, residents began leaving the island as more and more of its landmass fell victim to erosion. By the early 1990's, all that remained were several small clusters of islets rising just above the surface of the water. Reduced to about four acres, Poplar Island's disappearance seemed imminent.



Aerial photo of Poplar Island in 1996 – approx 4 acres



2008 aerial view

In 1994 the U.S Army Corps of Engineers working with the Port of Baltimore adopted a plan to restore the island using dredged material from the navigational channels leading to the Port of Baltimore.

Today the island is nearly 1,140 acres and significant progress has been made to create habitats for restoration.

AACC students have contributed to the habitat restoration of Poplar Island in 2 ways: planting of underwater grasses and the production of plants to create tidal wetlands.

Our students also participate in the production of wetland plants that are used to create tidal wetlands. Students harvest seeds in the fall for overwinter storage. In late winter they are tested and given to the Providence Center, a rehabilitation center for developmentally disabled adults.

Given the size of some projects, AACC students assist the clients of the Providence Center with planting. Plants are maintained by the clients until they have grown to a size suitable for field establishment.

In the AACC underwater grass restoration program, students harvest seed bearing stems from wild populations. These stems are returned to the lab where the seeds are isolated and tested for viability. They are then used to conduct restoration efforts at places like Poplar Island.

The following is a link to some additional information and photographs of Poplar Island.

<https://www.flickr.com/photos/meswave/sets/72157646018222922/show/>

Emergent Botany 101

Though it seems we wait all year for the joys that summer brings, it's hard not to be equally smitten with autumn on the Chesapeake and colors that practically glow this time of year. Asters grow wild in wonderful variety and the Salt Marsh Aster is among the most delicate. On the other end of the size spectrum is Veronia, which towers over other plants at the edge of the marsh. Here are reference sites with information on these two varieties and more: <http://plants.usda.gov/java/> & <http://www.wildflower.org/explore>



Photo courtesy of Michael Norman

Plant Profile

Scientific Name: *Vernonia noveboracensis*

Common Names: New York Ironweed

Plant Description: New York Ironweed is a tall, clump forming, herbaceous perennial found east of the Mississippi and as far north as southern New York and Massachusetts. It prefers full sun, moist meadows and high marsh regions but is also reasonably drought tolerant. Ironweed forms loose clusters of reddish-purple blooms from August through September on 5 – 8 ft. erect stems that loosely branch near the tops of the plant. The wildlife benefit of *V. noveboracensis* is especially important for the abundance of native bee species that rely on it, as well as, a source of nectar for butterflies and seed heads for birds. *Vernonia ovaboracensis* gets its name in honor of the 17th century botanist William Vernon; the Latin interpretation of noveboracensis is New York where the plant was presumably first identified. Traditionally, it has been used medicinally for pneumonia, loose teeth, snake bites, menstrual pain, and pain after childbirth



Photo courtesy of the Lady Bird Johnson Wildflower Center

Plant Profile

Scientific Name: *Symphyotrichum tenuifolium* – Formerly *Aster tenuifolius*

Common Name: Perennial salt marsh aster

Plant Description: The perennial salt marsh aster, while rather inconspicuous as a plant, stands out remarkable in the salt and brackish marshes where it is found. This low-growing member of the Aster family is an obligate wetland plant tolerant of high salt conditions. It grows 1 – 2 ft. in height with fleshy long narrow leaves and a sprawling mounded form. The distribution of *S. tenuifolium* is along coastal regions from Maine to Texas and is limited to tidal salt marshes. The flowering period is from August thru October with an often sparse showing of delicate blooms ½ - 1" across ranging in color from pale purple, pink or white. Despite its rather lack-luster description this plant is a true gem of the salt marsh and a real treat to encounter on a wonder fall day.

IT'S A WRAP!

This issue wraps up the 2015 series of The Floating Gardener newsletter. In addition to learning more about your own floating garden, hopefully you've gotten a peek into a range of environmental activities that are all aiming to support restoration of the Chesapeake Bay and revitalize the surrounding ecosystem. There's a lot more work to be done, but each person who steps up to take part makes a difference. For your participation, a big **THANK YOU!!!** from the MRA!

If you get the itch to do a little more reading on the subject of floating gardens, living shorelines, etc., here's information about some local projects to get you started.

FWS and MRA Riprap Mitigation



Living shorelines are becoming more common in low energy environments, but existing bulkheads and rock revetments still present a challenge. Chesapeake Bay Field Office's Partners for Fish and Wildlife Program, along with the Magothy River Association, have planted 1400 native plants on the Gibson Island causeway, Cattail Creek and Mill Creek. This pilot project aims to give existing rock revetment a "softer" look by filling the interstitial spaces with clean sand, then planting native marsh plants within the structure. These plantings will increase the aesthetics and ecological function of the revetment. The vegetation will offer additional buffer protection from waves, filter nutrients, and provide food and shelter for fish, crabs and waterfowl. If successful, marsh grasses will spread throughout the riprap, eventually making the area lush and covering the rock underneath. 85% of the Chesapeake

Bay's shoreline is privately owned, so homeowner involvement is essential in restoring vital fringe marsh habitats.

For the future, US Fish and Wildlife will create a step by step guide that local river associations and homeowners can adopt to initiate a restoration project. Under the right conditions this method can be easily incorporated into hardened shorelines, improving the health and natural beauty of the Chesapeake Bay.'

Chase Creek at Pines on the Severn

Aging bulkhead had been deteriorating for decades along the community beach at Pines on the Severn. Neighbors raised money and received grants to replace the bulkhead with a living shoreline that would shelter wildlife and resist erosion. This project has been the subject of several news articles, two of which are attached.

<http://www.severnarkvoice.com/community/living-shoreline-replaces-creekside-bulkhead-pines-severn>

<http://www.capitalgazette.com/news/ph-ac-cn-pines-0923-20150922-story.html>

National Aquarium in Baltimore Floating Wetlands

Baltimore's Inner Harbor is an ideal place for floating gardens. The entire waterfront has been converted to man-made structures, which severely limits any opportunity to restore a natural shoreline. In August 2010, the National Aquarium assembled, planted, and launched a "floating wetland island" in Baltimore's Inner Harbor. The Aquarium has monitored the island's plant and animal inhabitants ever since, and has worked with the University of Maryland's Maryland Sea Grant program to perform nutrient uptake experiments.

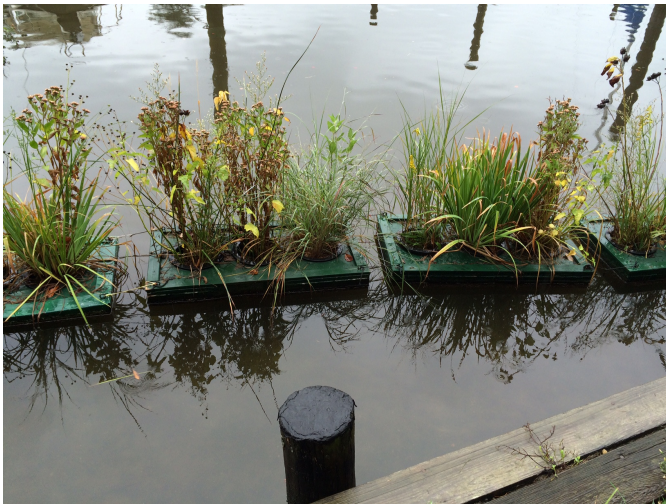
Overall, the island appears to be capable of supporting a lush and diverse community of wetland plants. The island is also colonized by a large and complex assemblage of estuarine organisms, including many filter-feeding species, which are a food source for fish and crabs. Check out the YouTube video of the project and launch by clicking this link.

<https://youtu.be/OcUGnKabz3A>

Gardeners' Forum:

The arrival of autumn signals the time to prepare your floating gardens for the off-season. Before you get started, take a moment to appreciate how much the plants have grown! That vegetation was fueled in large part by the nutrients your floating garden was removing from the water all summer. Pretty impressive, huh? Imagine the quantity of organic material that an entire fleet of these can process! The cumulative effect of natural filtration can be pretty dramatic.

There are several options for winterizing. You may **1.** Pull the float from the water out and remove the plant baskets, allowing the plants to die back naturally, then over-winter in a protected area. If possible, store the float out of the weather – it will probably last longer that way. **2.** If you elect to leave your floating garden in the water for the winter, as pictured below, trim the plants and compost the cuttings. Leaving them in the pots makes a mess and adds unnecessary weight to the floats over the winter. You'll have a head start when the plants begin to re-grow in the spring. **3.** Same as #1., except you can return your plants and baskets to the Providence Center to be recycled. Your basket will be refilled for \$10.00 in the spring. You can also elect to purchase new, filled plant baskets for \$15, without an exchange.



Coming Next Month Year!

Honor one who cultivated you! MRA Floating Garden fund-raiser for Mother's Day.

***Note: uncredited photos in this issue were provided by Dr. Stephen Ailstock**