



## 2021 MARYLAND STATE ENVIROTHON

The 2021 Maryland State Envirothon was held virtually on April 26 through 29. No regional or county competitions were held this year and all schools were invited to participate. More than 50 teams with approximately 250 competitors from 13 counties across the state participated in the 30th annual competition. The winners were announced at a special virtual awards ceremony on May 6, 2021.

The winning team was from Richard Montgomery High School in Montgomery County. They were followed by teams from Harford County and Allegany County. The Montgomery County team will represent Maryland at the National Conservation Foundation (NCF) Envirothon scheduled for July 25-28, 2021, also being held virtually. Four teams from Anne Arundel County participated in the 2021 Maryland Envirothon: one team from Arundel High School, one team from Broadneck High School and two teams from South River High School. The Green Wildcats from Arundel High School placed second in the forestry competition.

Established in 1990, the Maryland Envirothon's objectives are twofold – to test students' environmental knowledge and understanding of state resource issues and to instill a desire to learn more about the natural world. The first Envirothon competition was held in 1979 in Pennsylvania. Since then, more than 40 states, Canada, and China have embraced the program and sent teams to the competition.

The Maryland Envirothon is a 501(c)3 non-profit organization. Donations made to the Envirothon are tax deductible. Donations can be made to "Maryland Envirothon" and sent to Maryland Association of Soil Conservation Districts, 202 Governors Avenue, Greenwood, DE 19950.

Maryland state employees can donate to the Maryland Charity Campaign. Visit [mcc.maryland.gov](http://mcc.maryland.gov) for more information.

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# THE DISTRICT DIRT

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SUMMER 2021

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Maryland cover crop sign-up runs July 1 through July 16, 2021



## Anne Arundel Soil Conservation District

2662 Riva Road, Suite 150

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## COVER CROP SIGN UP RUNS JULY 1 THROUGH JULY 16, 2021

by David Scheler

Cover crops are planted at the conclusion of the fall harvest. Cover crops improve healthy soils, protect the soil from erosion and absorb unused plant nutrients remaining in the soil. They also protect water quality in the Chesapeake Bay and tributaries. We had another year of strong participation in the MDA's Cover Crop Program. Twenty-six applications were processed for fall 2021 cover crop planting, which represents 4,507 acres planted in Anne Arundel County. The Cover Crop Program has become popular due to the economic viability of implementing the practice coupled with the environmental benefit of planting a small grain over winter.

Participating farmers should contact the District and report cover crop acres within a week following fall planting. This year's cover crop sign-up runs July 1 through July 16, 2021. Don't miss this once-a-year opportunity to apply for cost share to help offset seed, labor, and equipment costs to plant cover crops in your farm fields this fall. Contact David Scheler at the District to report planted acreage or if you have any other questions regarding MDA's Cover Crop Program.

David Scheler, Soil Conservation Specialist, [david.scheler@md.nacdnet.net](mailto:david.scheler@md.nacdnet.net)

### NEW BMP UNDER CONSIDERATION

AASCD is seeking to gauge interest in "Livestock Shelter Structures" becoming a best management practice (BMP) in Maryland. Sufficient interest would result in a formal request for consideration to the NRCS State Engineer. If you are interested or would like additional information please contact our office.

### IMPORTANT DATES

Maryland Cover Crop Program Sign-up  
July 1 — 16: [mda.maryland.gov](http://mda.maryland.gov)

Maryland Buy Local Week  
July 17 — 25: [buylocalchallenge.com](http://buylocalchallenge.com)

MASCD Annual Meeting  
August 1 — 3: Hyatt Regency, Cambridge

Anne Arundel County Fair Week  
September 15 — 19 - Anne Arundel County Fairgrounds

### COVID UPDATES

Anne Arundel County employees will return to office on Tuesday, July 6. The public may enter county buildings starting on July 19th.

FOLLOW US ON FACEBOOK TO KEEP UP WITH THE LATEST NEWS AND INFORMATION!



### THE TAG ALONG FARM STREAM RESTORATION PROJECT

by Shelley Garrett

Flooding from stormwater runoff on agricultural land is a major concern for farmers in Anne Arundel County, Maryland. The Anne Arundel Soil Conservation District (SCD) works with local farmers to implement approved best management practices (BMPs) to alleviate flooding and reduce pollutants with a goal of encouraging conservation of natural resources. There is an SCD-approved agricultural BMP – Regenerative Stream Channel (RSC) – that provides extensive ecological benefit while also solving farmers’ stormwater management issues. However, the BMP has not been implemented by many farmers to date due to the extensive cost required to construct.

Tag Along Farm in Davidsonville has long been plagued with flooding issues due to a failing pond. The pond was installed in the 1960’s, during a subdivision of the farm through the damming of an upper Patuxent tributary to create additional building lots. The pond’s outfall infrastructure failed due to non-existent maintenance from Anne Arundel County, additional stormwater load from the expansion of Maryland Route 50, and extensive residential housing growth in the area. When the landowners purchased the property in the 1970’s, they could not have anticipated the detrimental effect the pond would have on their equine business and livelihood. They began to experience sink holes from the failing pipe and extensive flooding of their pastures and buildings resulting in economic and environmental losses. For 14 years, the landowner sought remedy through Anne Arundel County and the Maryland State Highway Administration but were unsuccessful due to being the only residential property directly impacted by the stormwater events. The landowners were contacted by the SCD, when an employee saw their post calling for help on Facebook.



Flooding from breach of dam due to failing outfall pipe



Before: Flooding over the dam at the failing pond



After: stream flow during heavy rainfall event

After months of dead ends with local and state government, the SCD suggested a private firm who works in stream restoration projects: Underwood & Associates (U&A). The SCD and U&A created a plan to remove the failing pond, and highlight the historic stream to restore the natural flow through an RSC. Within a short time, the Tag Along Farm Stream Restoration Project was designed by U&A, approved by SCD, and funded by the Maryland Department of Natural Resources (DNR) for construction.

The Tag Along Farm Stream Restoration Project is an innovative and unique partnership between local and state government, a private landowner, and a private ecosystem restoration design and build engineering firm. The project provides a comprehensive approach to manage stormwater on the entire farm property, as well as 79.5 acres of drainage area leading to the project, through a nature-based

treatment system (RSC) that is SCD-approved as a BMP.

The successful implementation of this project has become a demonstration project for other farmers to visualize and utilize on their farms to increase ecological productivity of additional streams in the county, creating a larger positive effect on the Chesapeake Bay watershed.

The RSC BMP approach to solving those problems allows the farmers to get what they need (pollutant removal and stormwater management), the State to what it needs (significant TMDL reductions), and it does so through SCD who already has established a partnership with farmers and understands how balance their needs with environmental concerns.

The implementation of this project has helped to meet five of the *continued on page 4*



### WHAT’S NEW WITH MDA

#### Cost -Share Funding is Now Available to Assist Farmers with Poultry Manure

– Maryland farmers can have up to 87.5% of the cost covered to build a satellite storage facility for poultry manure. The covered facilities preserve the nutrient content of the poultry manure. You can construct one to store poultry manure for use on your farm or serve as a distribution facility for other farms and farmers. Additional funding is available to transport the manure through the Manure Transport Program.

#### Governor Hogan Signs Bill to Provide More Assistance –

This legislation allows up to 100% cost-sharing on 23 Best Management Practices (BMPs) and is intended to help the state reach its Watershed Implementation Plan (WIP) goals. The practices that were chosen have a life span of 10 years or greater and significantly contribute to meeting the WIP goals. To qualify you must have a current Soil Conservation Water Quality Plan. Practices include fencing, grassed waterways, diversions, field boarders, and others. After June 30, 2026 all 23 practices will return to normal cost-share rate.



### NSA ANNAPOLIS, GREENBURY POINT STABILIZATION PROJECT

by Joe Superczynski

Greenbury Point, located at the mouth of the Severn River, is managed by Naval Support Activity (NSA). The point is currently a natural resource conservation area that is open to the public, however because the area is important to the NSA Annapolis mission it can close at any time without notification.

The first naval aviation training ground was held at Greenbury point in the early 1900’s. At the same time, the navy was developing wireless worldwide communication. The navy’s high power low frequency radio station was located on the 231 acres from 1918 until 1994. The main umbrella antenna consisted of a 1,200’ tower, six 800’ guided towers and three 600’ towers. There were also 36 smaller towers on the site. In 1999 the towers were demolished except for the three 600’ towers closest to the point. These towers, constructed in 1938, serve as navigation for boats and aircraft and Anne Arundel County government also uses them for communication.

Greenbury Point has over 10,000’ of shoreline. Some of the shoreline is natural and some consist of bulkhead, rock, and bulkhead with



rock. Southern Maryland Resource Conservation and Development (RC&D) contracted Coastline Design to design shoreline stabilization on the tip of Greenbury Point. That portion of the point has metal sheet pile behind a wooden bulkhead with rock in front of it. The rock was not sufficient enough to protect the wooden bulkhead that was deteriorating. The shoreline protection was improved by adding stone to raise the stone elevation up to 7.0’, approximately 1’ below the top of the bulkhead. A flat section extends out between 8’ to 13.5’ with a 2:1 slope to 6’ long anchor section on bay floor. In addition, #3 stone was used to fill the small voids and some of the erosion that had taken place between the wooden bulkhead and the sheet pile.

The Soil Conservation District was contracted by RC&D to perform the inspections on the project during

construction. Construction started on October 13, 2020. Equipment on site included a main delivery barge, service barge, line barge, work barge, a tug and work boat. The delivery barge, carrying 2,500 tons, delivered the stone from Richmond, VA. An excavator on the delivery barge was used to load stone onto the line barge which would take material to the work barge located on the shoreline. Another excavator on the work barge would strategically place the 800-2,000 lb. stones onto the shoreline. Approximately 8,000 tons of stone was used to complete the project. The project progressed without any issues and was completed on November 17, 2020. 1,167 linear feet of shoreline stabilization was installed.

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**TAG ALONG...**

key objectives of the 2014 Chesapeake Bay Watershed Agreement goals:

- Water Quality - through treatment of stormwater via an approved BMP
- Land Conservation - by enabling the farm to continue functioning despite increased stormwater flows, and by encouraging agricultural landowners to be good stewards of the land through Bay-healthy choices in their land management
- Climate Resiliency - by providing protection for agricultural infrastructure and land from increased stormwater load
- Vital Habitats - through wetland creation and restoration of habitat in areas where little exists now, reduction of sediment loads to the receiving waterway, by removing blockages to fish passage, and by restoration of forest buffer
- Sustainable Fisheries - by creating fish habitat; and
- Stewardship - by encouraging environmental stewardship in the agricultural community.

The challenges faced during construction created a unique positive attribute of the project. The challenges included the field corrections that were implemented to make the project fit with the environment, not the environment fit with the project. Field changes were utilized to accommodate existing trees and plant life to minimize the ecological impact of construction by winding the project through the area instead of

clearing the entirety of the limits of disturbance. The project utilized native plants that were already present at the site and highly desired in the region.

Additionally, weather served as a problem for construction. Due to wet conditions, the start of the project was delayed, causing an extension of the grant funds to be requested. However, SCD and U&A were prepared and the amount of time to install the practice was expedited and efficient, allowing the ground to only be exposed for a minimal amount of time before it was stabilized. This limited possible negative environmental impacts to the stream and made the project more desirable to farmers for the quick turnaround time of start to finish. This project was completed in only three months.

The site now also serves as an educational project for federal, state, and local governments, as well as private landowners exploring the option to implement the RSC BMP on their own properties. The stream restoration at Tag Along Farm is available to be toured by invited groups interested in installing similar practices on their own land or for cooperators in other jurisdictions. It has been toured by the United States Department of Agriculture Natural Resources Conservation Service, Maryland Department of Agriculture, DNR, Anne Arundel County, and private agricultural landowners. Since its construction, Tag Along Farm has influenced the approval of funding for three additional stream restoration projects on agricultural farms in Anne

Arundel County for the year of 2021.

The Tag Along Farm Stream Restoration Project created a major positive impact on the Upper Patuxent watershed of the Chesapeake Bay. The key objectives accomplished by the project was the creation of 0.61 acres of wetlands and 1050 linear feet of channel bed restoration to provide a heavy TMDL load reduction. The TMDL load reductions totaled 715.87 lbs/year of nitrogen, 72.18 lbs/year of phosphorus, and 8.69 tns/year of suspended sediment. The ability of the agricultural land to withstand increased storm flows and velocities through a nature-based BMP increases climate change resiliency. The restoration of critical habitat for native flora and fauna in an area where it formerly existed creates habitat restoration. The visual demonstration of the minimally invasive ecological restoration project educates farmers on how similar projects constructed on their land could benefit not only the environment, but their livelihoods as well.

The Tag Along Farm Stream Restoration Project demonstrates how a partnership can be formed between public and private stakeholders to bring together not only a vision, but a tangible and impactful environmental and ecological improvement to the Chesapeake Bay.

Shelley Garrett, Soil Conservation Specialist, [s.garrett@ascd.org](mailto:s.garrett@ascd.org)



**FARM POND AQUATIC VEGETATION: PART TWO OF THE POND SERIES**

by John Czajkowski

If you have a farm pond, chances are that sooner or later you will see some type of aquatic vegetation growing on the bottom or along the edges. Basically, there are two types of aquatic vegetation, what we commonly call algae and then there are vascular plants or as some say, aquatic weeds. Now don't get me wrong, some vegetation is good for the pond in the correct amounts. Aquatic vegetation provides cover for many aquatic animals and is a source of food and oxygen. It also helps stabilize bottom sediments in the pond. But when the growth becomes aggressive and overtakes the pond, control is warranted.

Let's start with algae. There are several types we normally see. One species that I have seen a lot in local ponds is called filamentous algae. You see it in clumps floating on the surface. It grows from the bottom of the pond and as the clumps break off, they float to the surface. If you scoop it up, it is stringy and sometimes slimy feeling depending on the species. Another type is planktonic algae which is usually microscopic. If you scoop some water in your hand you may not even see the individual plants,

but if your pond is overpopulated with planktonic algae, it will have the color of pea soup. Muskgrass and stonewort are forms of algae that resemble aquatic plants. They appear to have stems and leaves. You can identify muskgrass algae as it has a musty odor and feels rough when rubbed between your fingers. It has a crunchy feel when crushed. Stonewort does not feel rough or have a musty odor.

Next are vascular plants, which are divided into two categories: floating weeds and submerged weeds. Some of the floating weeds you can find in local ponds include duckweed, water pennywort and water lily. Some of the more common submerged weeds locally are sago pondweed, curlyleaf pondweed, American pondweed, wild celery, water buttercup, milfoil, coontail and bladderwort.

So why is your pond having a weed problem? One reason is nutrients. Aquatic plants, just like terrestrial plants, grow best when supplied with the proper nutrients. These nutrients come from crop fields, feedlot runoff, lawn and garden fertilizer runoff, geese, and other aquatic animals. Sunlight is another necessity for growth. Shallow areas in a pond allows sunlight to penetrate to the bottom where most aquatic plants grow. Weather can also play a part in the growth of aquatic vegetation.

There are three methods of weed control, that can be done alone or in combination with one another: mechanical removal, chemical control, and biological control. And remember, this is the control of aquatic plants,

not the elimination. Ponds used for recreation such as swimming and boating should keep aquatic weeds to a minimum. However, ponds that are used to attract waterfowl or other wetland wildlife can have at least 25% of the pond supporting aquatic growth. This would supply food and cover for the wildlife. If your pond's fish population consist of a bass-bluegill population, you will want to keep the aquatic growth to a minimum since young bluegill will use the weeds as cover. As a result, your bluegill population may get out of hand.

Some ponds develop algae in the shallow portions of the pond every year. But if the algae is contained in the shallow areas and does not break off into large floating mats, you may not want to remove it. But if aquatic growth starts early in your pond and almost covers the pond, you may consider treatment options.

**Mechanical Control**

Mechanical control consists of many techniques which include pulling or raking, smothering, shading, or deepening all shallow areas so no area is shallower than 3 feet. Why 3 feet? Generally, anything less allows light to penetrate to the bottom of the pond. By having the pond deeper, you eliminate one of the factors the plants need to survive.

Some plants are physically easier to remove than others. In all cases it is better to remove the vegetation before there is a mass build up. Mechanically removing the vegetation and disposing

**FARM POND...**

of it up land has the added advantage of removing nutrients for the pond.

Free floating plants such as duckweed and filamentous algae floating mats can be removed with a floating boom that skims the water and can be dragged to shore or by seining. Submerged plants such as bladderwort, watermilfoil, and anchored filamentous algae can be removed by raking or dragging the pond with a heavy-duty net or a chain. Cattails, phragmites sedges and rushes must be removed by digging and hand pulling. The roots and rhizomes need to be removed or they will grow back.

There are products that you can add to a pond to shade the bottom, thus reducing the light and either preventing growth or killing what is there. Aquascreen aquatic weed control are woven fiberglass filaments with a PVC coating. It comes in 7 ft by 100 ft rolls and is placed and anchored over weeds growing from the bottom. It is easier to install in early spring before plants begin their spring emergence. If attempting to install it during the summer, it is recommended that you remove the plants first. Aquashade is a water-soluble dye that turns the pond bright blue. It is non-toxic and easy to apply. It reduces the light that can penetrate to the pond bottom. Aquashade works well in ponds that have a slow recharge. Ponds having a high flow in and out will dilute the dye and reapplication will need to occur more often.

Deepening the pond is a long-term solution. As a pond ages, the edges become shallower and become an area of aquatic growth. By excavating the edges to a depth of 3 feet or greater, the light intensity is reduced. Most emergent plants thrive in 2 feet or less of water, and filamentous algae, chara, and stonewort grow best in 3 feet of water or less. Removing the accumulated sediment has the added benefit of removing the established root systems and seeds of rooted aquatic plants.

**Chemical Control**

It is important that you know what you have growing in your pond as the chemical treatment of algae is



different from vascular plants. A permit is needed to apply toxic chemicals to your pond. Permits are issued by the Maryland Department of the Environment (MDE). However, MDE has granted Districts the ability to issue an Emergency Toxic Material Permit. More information is available on our website under "Agriculture" then under "Other Resources". It is limited to three types of chemicals. If you wish to use another chemical other than the three you will need to contact MDE to obtain a permit. Only chemicals which have been approved and registered by the U.S. Environmental Protection Agency for fisheries may be used in fishponds.

When using chemicals, you will need to be careful on a pond having aquatic vegetation covering or filling 50% to 75% of the pond area. We recommend treating the pond in stages and not treating all the vegetation all at one time. Use 1/2 as much herbicide as recommended for the whole pond and only treat 1/2 the pond at a time. As the microbes break down the decaying vegetation, they use oxygen. If oxygen is used faster than it can be replenished by surface absorption and photosynthesis, it could result in a fish kill. This is less likely to happen in the spring while the water is cooler and holds more oxygen but could create a dangerous situation during the hot summer months. If the pond looks like it is filled from 75% to 100% of aquatic vegetation, we recommend only treating 1/4 of the pond at a time, using only 1/4 as much herbicide as needed for the whole pond. Wait two to three weeks after each application for the next application. Most herbicides only kill 50 to 75% of the

plants treated the first time. A follow up application will most likely be needed.

**Biological Control**

In Maryland, biological control is not a legal option. Biological control would mean stocking the pond with Ctenopharyngodon Idella, or what is commonly known as grass carp or white amur. It is illegal to stock grass carp as it is prohibited from import, transport, sale, purchase, and possession in Maryland. The reason being we are trying to reestablish the submerged aquatic vegetation along the shores of the Chesapeake Bay and grass carp are good at consuming aquatic vegetation. If grass carp were to exit a pond's overflow spillway during a rain event and get into the stream system or be carried into other waters as intended prey from fish eating Aves, they could potentially make it into the bay. We only need to look at the spread of the northern snakehead to realize just how fast this can happen. As a rule, grass carp will not reproduce in confined water bodies but will spawn in long fast-moving rivers. Each female, on average, lays 500,000 eggs per brood. So, for now, biological control of aquatic vegetation is not an option.

In our next newsletter we will cover fish kills in more detail and look at other creatures that can be found in your pond but are not necessarily welcome. We will also look at the importance of thermal stratification and temperature.

John Czajkowski, District Manager, john@aacsd.org



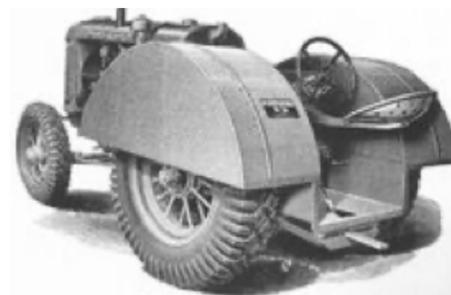
**AN INTERESTING LOOKING TRACTOR: THE MCCORMICK-DEERING O-6 ORCHARD TRACTOR**

by John Czajkowski

The McCormick-Deering O-6 was produced from 1940 to 1953 and was based on the W-6 tractor, which was the replacement for the W-30 kerosene tractor. The OS-6 was the replacement for the W-30 orchard tractor. The differences between the W-6 and the OS-6 were the lowering of the air intake and exhaust. If you purchased the optional headlights, they would be located below the radiator. The seat and controls were mounted lower and further towards the back of the tractor. Note the exhaust coming out between the governor and radiator in the photo. The O-6 included panels that covered the engine compartment along with shielding to cover the rear wheels and steering wheel so it would not catch any branches or fruit. The front wheels had solid rims to prevent damaging of any branches. The ODS-6 was the diesel version of the OS-6. The OS-4 and O-4 were produced parallel with the O-6 and OS-6 tractors, from 1944 to 1953 and were based on the W-4 tractor. As with the O-6 and OS-6 the W-4 based orchard tractors could be purchased with or without the full shielding. The OS-4 tractor was a bit narrower than the OS-6 with a width of 56 in., a height of 56 in. and a length of 121 in. verses the 60 in. width, height of 62 in. and 133 in. length of the OS-6.

You may not have an orchard tractor, but if you have an orchard, are growing crops on plastic or need an irrigation system for your crops, the Natural Resources Conservation Service has cost share money available to help with the purchase and installation of an irrigation system. Contact us for more information.

John Czajkowski, District Manager, john@aacsd.org



1940 W-30 Orchard,



W-6



O-6 Orchard



OS-6 Orchard, note the exhaust location.



OS-4 Orchard Tractor, note the location of the lights.



O-4 Orchard



**OVER 50,000 ACRES CERTIFIED**

The Maryland Association of Soil Conservation Districts (MASCD) announced that the Farm Stewardship Certification and Assessment Program (FSCAP) has certified over 50,000 acres throughout the state. Additionally, FSCAP now has at least one certified farm in each of Maryland's 23 counties

Established by MASCD in 2010, FSCAP recognizes and certifies farmers who have demonstrated that they are good stewards of their farmland and related natural resources, provides qualifying farmers with three-year waivers from state nutrient management inspections and links farmers with new resources and conservation programs. Learn more about FSCAP at mascd.net